

Revue suisse Zool.	Tome 93	Fasc. 2	p. 423-455	Genève, juin 1986
--------------------	---------	---------	------------	-------------------

Agathidium from India and Malaya: expeditions of Geneva Natural History Museum (Coleoptera, Leiodidae, Anisotomini)

by

Fernando ANGELINI * & Luigi DE MARZO **

With 98 figures

ABSTRACT

Descriptive and/or collecting data are presented for 22 species of *Agathidium* found in Assam, Meghalaya, Tamil Nadu (Madras), Kerala and Malaya by researchers of the Geneva Museum.

New descriptions: *A. pilosellum* n. sp. (Malaya), *A. malaysicum* n. sp. (Malaya), *A. malayanum* n. sp. (Malaya), *A. jaccoudi* n. sp. (Malaya), *A. brahmano* n. sp. (Assam), *A. pseudomadurensis* n. sp. (Tamil Nadu and Kerala), *A. shillongense* n. sp. (Meghalaya), *A. pseudomontanellum* n. sp. (Tamil Nadu), *A. pileti* n. sp. (Malaya), *A. manasicum* n. sp. (Assam), *A. palnicum* n. sp. (Tamil Nadu and Kerala), *A. assamense* n. sp. (Assam), *A. mussardi* n. sp. (Tamil Nadu and Kerala).

New records: *A. unicolorum* Ang. & Dmz. and *A. lebongense* Ang. & Dmz. for Meghalaya; *A. laticorne* Port. for Meghalaya, Kerala, Tamil Nadu and Malaya; *A. biimpressum* Champ. for Tamil Nadu; *A. andrewesi* Port. for Kerala.

Redescriptions: *A. madurensis* Port., *A. laticorne* Port., *A. biimpressum* Champ., *A. andrewesi* Port.

The spermatheca of *A. meghalayanum* Ang. & Dmz. is figured.

A new subgenus, *Microceble*, is designated, and a list of the species enclosed is given.

* Via Imperiali N. 203, I-72021 Francavilla Fontana (Brindisi), Italy.

** Istituto Entomologia Agraria Università, via Amendola 165, I-70126 Bari, Italy.

INTRODUCTION

Thanks to the courtesy of Dr. Claude Besuchet, we can present here further distributional and taxonomical data on *Agathidium* of S/E Asia. They arise from the study of 353 specimens (22 species) collected by researchers of the Geneva Museum in:

- 4 localities of Assam: 61 exx., 5 spp., 20-23.X.1978, leg. Besuchet & Löbl;
- 7 localities in Meghalaya: 35 exx., 6 spp., 25.X-5.XI.1978, leg. Besuchet & Löbl;
- 31 localities of Tamil Nadu and Kerala: 267 exx., 8 spp., 2-30.XI.1972, leg. Besuchet, Löbl & Mussard;
- 6 localities in Malaya: 58 exx., 5 spp., VIII-IX.1972, leg. Jaccoud; 1 ex., 1 sp., 23.VI.1969, leg. Pilet.

This material includes: a) 13 new species; b) specimens of *A. madurense* Port., *A. biimpressum* Champ. and *A. andrewesi* Port., of which only the types were known; c) females of *A. meghalayanum* Ang. & Dmz., of which only males were known; d) new records for Meghalaya (*A. unicolor* Ang. & Dmz., *A. lebongense* Ang. & Dmz., *A. laticorne* Port.), Kerala (*A. laticorne* Port., *A. andrewesi* Port.), Tamil Nadu (*A. laticorne* Port., *A. biimpressum* Champ.) and Malaya (*A. laticorne* Port.).

This contribution deals also with the proposition of a new subgenus, *Microceble*, which includes a number of species from S/E Asia.

The specimens are deposited in Geneva Museum (GM) and Angelini's collection (AC).

***Agathidium* (*Neoceble*) *unicolorum* Ang. & Dmz.**

Agathidium (*Neoceble*) *unicolorum* Angelini & De Marzo, 1984c, *Entomologica*, 19: 28.

Material: INDIA, Meghalaya, Khasi Hills, Welloi, 1700 m, 27.X.1978, leg. Besuchet & Löbl, 1 ex. in GM, 1 ex. in AC.

Discussion: These new specimens are fully in agreement with the description of the types.

Distribution: Tai Wan, India (Meghalaya). New record for Meghalaya.

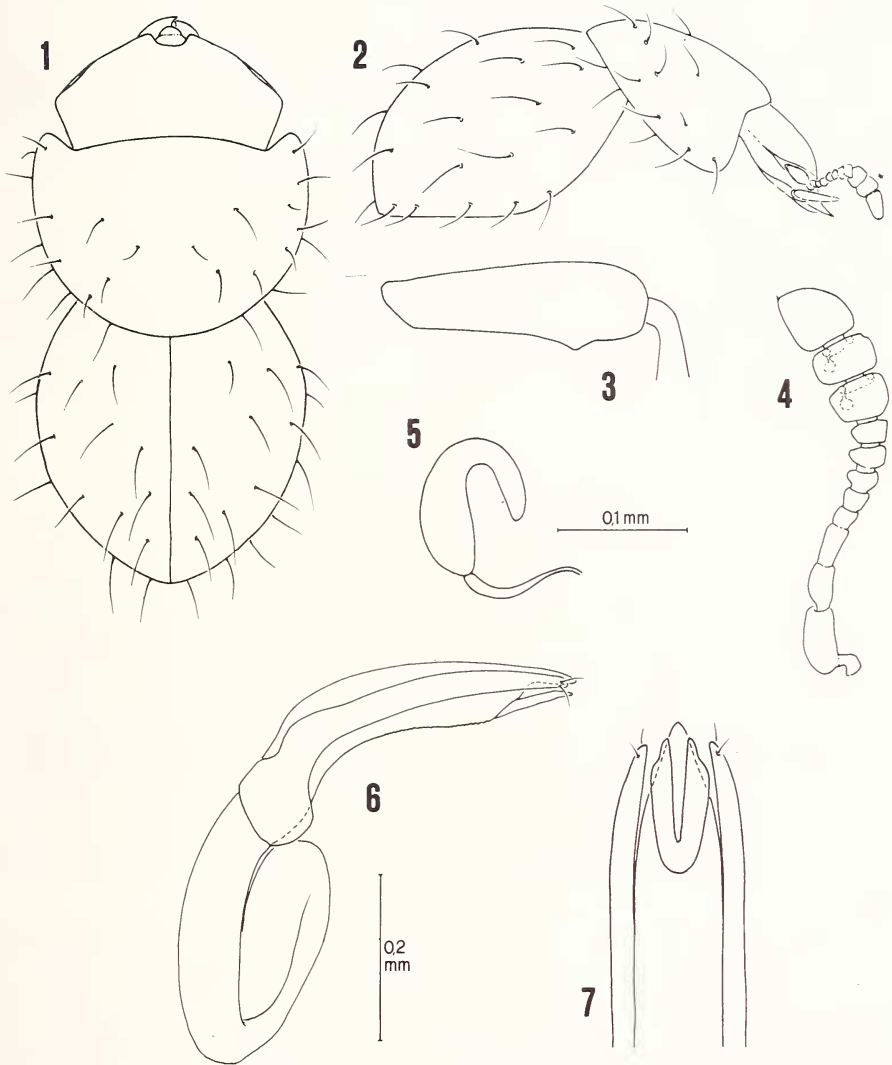
***Agathidium* (*s. str.*) *pilosellum* n. sp.**

Figs 1-7

Length 1.95 mm (holotype ♂ and paratype). Dorsum reddish-brown, venter reddish-brown, antennae and legs testaceous. Whole dorsum without microreticulation; head and pronotum with very small punctures, pronotum and elytra with some long setae (figs 1-2).

Head: Punctures very small, difficult to see even at 100×. Clypeal line absent. Eyes very flattened. Wider behind the eyes, and nearly as broad as pronotum. 3rd antennal segment as long as the 2nd and shorter than 4th+5th (fig. 4); Hamann's organ: gutter with one vesicle in both 9th and 10th antennal segments.

Pronotum: Punctures as small as on head, but sparser; some long and thin setae are scattered on the whole surface. 1.2 times as broad as head, moderately transverse (W/L = 1.41) and very convex (W. H = 1.46). Anterior margin nearly rectilinear (fig. 1). Lateral outline nearly angulate (fig. 2). Holotype: length 0.65 mm, width 0.92 mm, height 0.63 mm.



FIGS 1-7.

Agathidium pilosellum n. sp.: 1, habitus (dorsal view); 2, habitus (lateral view); 3, Male hind femur; 4, antenna; 5, spermatheca; 6-7, male copulatory organ (lateral view and ventral view of apex).

Elytra: Only some very small punctures are present, together with about 12 long setae and some shorter ones. A little narrower than pronotum, as broad as long and moderately convex ($W/H = 1.62$). Lateral outline with weak humeral angle (fig. 2). Sutural striae absent. Holotype: length 0.86 mm, width 0.86 mm, height 0.53 mm.

Metathoracic wings absent. Meso- and metasternum: median carina absent, lateral lines absent, femoral lines indistinct (mesocoxae very close to the mesocoxae). A short metasternal tubercle is present in the male.

Legs: Male hind femora with subdistal tooth (fig. 3). Tarsal formula σ 4-4-4, φ 4-4-4.

Male copulatory organ (figs 6-7): Aedeagus comparatively shortened, with ring-like proximal part, lateral margins gently convergent into a subacute tip; ventral piece bifid. Parameres slender, gently tapering towards apex.

Spermatheca (fig. 5): Basal part pear-shaped; apical part slender, shorter than the former.

Discussion: Owing to its very shortened metasternum, *A. pilosellum* n. sp. is closely related to *A. malaysicum* n. sp., *A. malayanum* n. sp. and *A. jaccoudi* n. sp., but it is distinguishable by smaller size, shape of the head (wider behind eyes) and presence of dorsal setae. The short metasternum separates these four species from the others of S/E Asia and relates them to a number (eleven) of Himalayan species (ANGELINI & DE MARZO 1981).

Types: MALAYA, Pahang, Cameron Highlands, Tanah Rata, 1300 m, 7.VIII.1972, leg. Jaccoud, holotype σ N. 3133 in GM, 1 φ paratype N. 3482 in AC.

Distribution: Malaysia (Malaya).

Agathidium (s. str.) *malaysicum* n. sp.

Figs 8, 11, 12, 17, 20, 21

Length 2.1-2.4 mm (holotype σ 2.3 mm). Dorsum uniformly black or reddish-brown; venter reddish-brown; antennae and legs testaceous. Microreticulation absent. Head with very small punctures, pronotum and elytra with distinct and regular puncturation.

Head: Punctures very small and superficial, spaced from each other by 3-10 times their own diameter. Clypeal line absent. Eyes very flattened and long. Nearly as broad as pronotum, wider at eyes. 3rd antennal segment as long as the 2nd and shorter than 4th+5th (fig. 8); Hamann's organ: gutter with one vesicle in both 9th and 10th antennal segments.

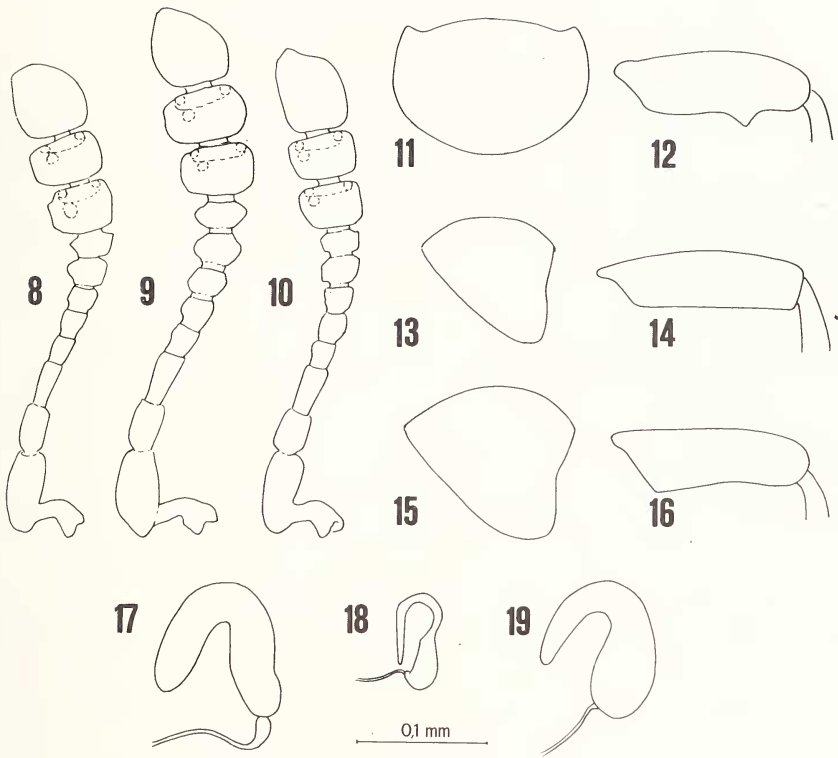
Pronotum: Punctures larger and more impressed than on head, spaced from each other by 2-6 times their own diameter. 1.2 times as broad as head, moderately transverse ($W/L = 1.45$) and moderately convex ($W/H = 1.54$). Anterior margin moderately bent (fig. 11). Lateral outline nearly angulate. Holotype: length 0.72 mm, width 1.05 mm, height 0.68 mm.

Elytra: Punctures as large and impressed as on pronotum but sparser. As broad as pronotum, nearly as broad as long ($W/L = 1.05$) and moderately convex ($W/H = 1.69$). Lateral outline with weak humeral angle. Sutural striae absent. Holotype: length 1.00 mm, width 1.05 mm, height 0.62 mm.

Metathoracic wings absent. Meso- and metasternum: median carina present, lateral lines absent, femoral lines indistinct (metasternum very shortened). A short metasternal tubercle is present in the males.

Legs: Male hind femora with a strong subdistal tooth (fig. 12). Tarsal formula σ 4-4-4, φ 4-4-4.

Male copulatory organ (figs 20-21): Aedeagus slender, with spiral-like proximal part, lateral margins abruptly convergent into a subacute apex, bifid ventral piece. Parameres slender, rounded at apex.



FIGS 8-19.

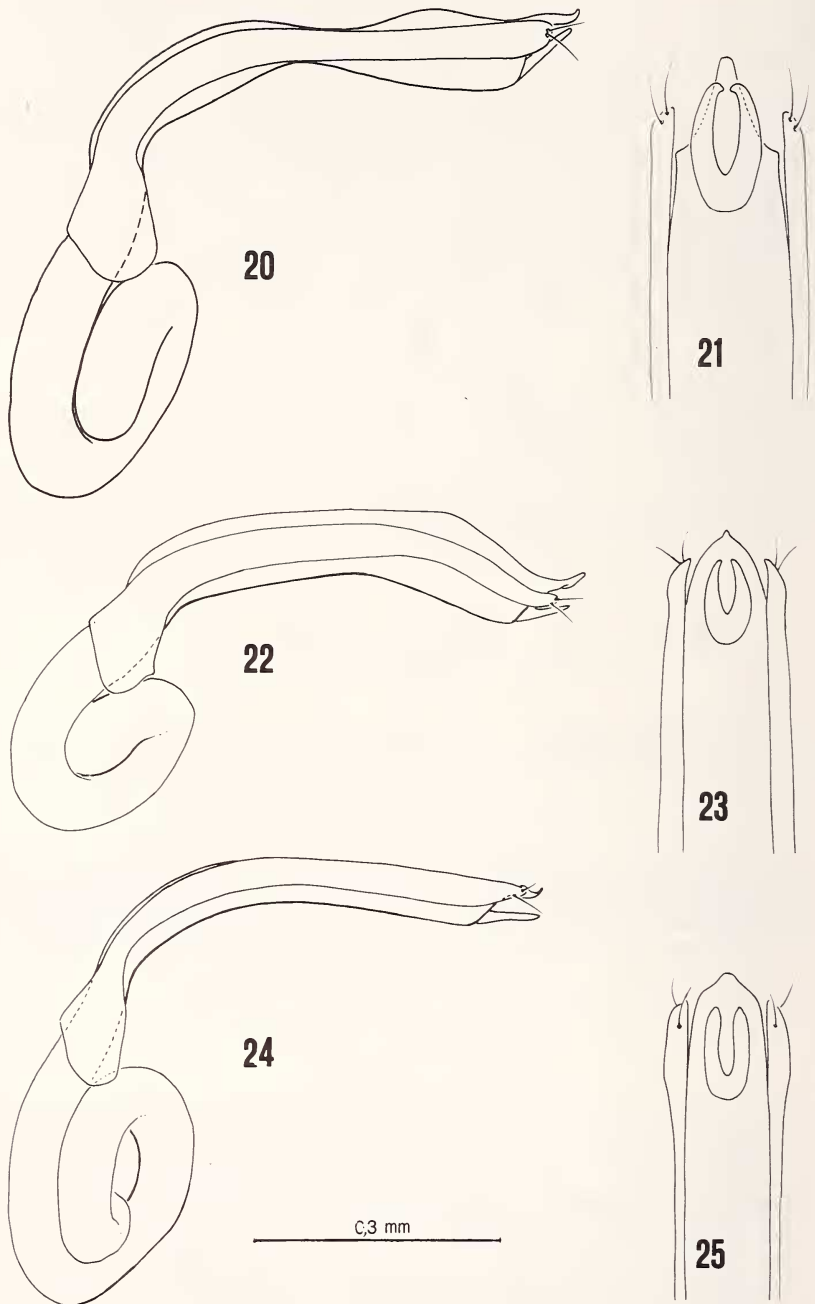
Antenna of: 8, *Agathidium malaysicum* n. sp.; 9, *A. malayanum* n. sp.; 10, *A. jaccoudi* n. sp. Dorsal view of pronotum and male hind femur of: 11-12, *A. malaysicum* n. sp. Lateral outline of pronotum and male hind femur of: 13-14, *A. malayanum* n. sp.; 15-16, *A. jaccoudi* n. sp. Spermatheca of: 17, *A. malaysicum* n. sp.; 18, *A. malayanum* n. sp.; 19, *A. jaccoudi* n. sp.

Spermatheca (fig. 17): Basal and apical part alike in shape; the apical one shorter.

Discussion: *A. malaysicum* n. sp. is similar to *A. malayanum* n. sp. and *A. jaccoudi* n. sp., from which it differs in the clear puncturation of pronotum, the toothed male hind femora and resolutely in the shape of the male copulatory organ.

Types: MALAYA, Pahang, Cameron Highlands, Tanah Rata, 1300 m, 7.VIII.1972, leg. Jaccoud, holotype ♂ N. 3126 and 1 ♂ paratype N. 3127 in GM, 1 ♂ and 1 ♀ paratypes N. 3128, 3129 in AC; Pahang, Berinchang, Cameron Highlands, 26.III.1977, leg. Jaccoud, 1 ♂ paratype N. 3130 in GM, 1 ♂ paratype N. 3132 in AC.

Distribution: Malaysia (Malaya).



FIGS 20-25.

Male copulatory organ (lateral view and ventral view of apex) of:
 20-21, *Agathidium malaysicum* n. sp.; 22-23, *A. malayanum* n. sp.; 24-25, *A. jaccoudi* n. sp.

Agathidium (*s. str.*) **malayanum** n. sp.

Figs 9, 13, 14, 18, 22, 23

Length 2.20-2.35 mm (holotype ♂ 2.35 mm). Dorsum uniformly reddish-brown; venter reddish-brown; antennae and legs testaceous. Microreticulation absent. Punctures very small on head and pronotum, absent on elytra.

Head: Punctures very small and superficial, difficult to see even at 100×, spaced from each other by 5-10 times their own diameter. Clypeal line absent. Eyes very flattened. Wider at eyes and nearly as broad as pronotum. 3rd antennal segment nearly as long as the 2nd and shorter than 4th+5th (fig. 9); Hamann's organ: gutter with one vesicle in both 9th and 10th antennal segments.

Pronotum: Punctures as small and sparse as on head. 1.2 times as broad as head, not very transverse (W/L = 1.35) but very convex (W/H = 1.52). Anterior margin slightly bent. Lateral outline nearly angulate (fig. 13). Holotype: length 0.77 mm, width 1.04 mm, height 0.68 mm.

Elytra: Only some very small punctures. As broad as pronotum, nearly as broad as long and very convex (W/H = 1.92). Lateral outline with weak humeral angle. Sutural striae absent. Holotype: length 1.04 mm, width 1.02 mm, height 0.53 mm.

Metathoracic wings absent. Meso- and metasternum: median carina absent, lateral lines absent, femoral lines indistinct (metacoxae very close to the mesocoxae). A small metasternal tubercle is present in the male.

Legs: Male hind femora simple (fig. 14). Tarsal formula ♂ 4-4-4, ♀ 4-4-4.

Male copulatory organ (figs 22-23): Aedeagus slender, with spiral-like proximal part, lateral margins gently convergent into a small subacute tip, bifid ventral piece. Parameres slender, gently tapered towards apex.

Spermatheca (fig. 18): Very small; basal part pear-shaped; apical part thin and long.

Discussion: *A. malayanum* n. sp. is closely related to *A. malaysicum* n. sp. and *A. jaccoudi* n. sp., from which it differs in shape of male hind femora and male copulatory organ.

Types: MALAYA, Pahang, Berinchang, Cameron Highlands, 26.III.1977, leg. Jaccoud, holotype ♂ N. 3134 in GM, paratype ♀ N. 3131 in AC.

Distribution: Malaysia (Malaya).

Agathidium (*s. str.*) **jaccoudi** n. sp.

Figs 10, 15, 16, 19, 24, 25

Length 2.4-2.55 mm (holotype ♂ 2.40 mm). Dorsum uniformly black; venter reddish-brown; antennae and legs testaceous. Microreticulation absent. Puncturation nearly absent: only some very small punctures on head and pronotum.

Head: Widest at eyes, nearly as broad as pronotum. Eyes very flattened and long. 3rd antennal segment nearly as long as the 2nd and shorter than 4th+5th (fig. 10); Hamann's organ: gutter with one vesicle in both 9th and 10th antennal segments.

Pronotum: 1.3 times as broad as head, not very transverse (W/L = 1.36) but very convex (W/H = 1.41). Anterior margin slightly bent. Lateral outline broadly rounded (fig. 15). Holotype: length 0.88 mm, width 1.20 mm, height 0.85 mm.

Elytra: A little less broad than pronotum, nearly as broad as long (W/L = 1.12) and not very convex (W/H = 1.83). Lateral outline with weak humeral angle. Sutural striae absent. Holotype: length 0.98 mm, width 1.10 mm, height 0.60 mm.

Metathoracic wings absent. Meso- and metasternum: median carina weak and short, lateral lines absent, femoral lines indistinct (metacoxae very close to the mesocoxae). A short metasternal tubercle is present in the males.

Legs: Male hind femora simple, broadest at the proximal end (fig. 16). Tarsal formula σ 4-4-4, φ 4-4-4.

Male copulatory organ (figs 24-25): Aedeagus very slender, with spiral-like proximal part, lateral margins subparallel and abruptly convergent into a small rounded tip; ventral piece bifid. Parameres slender, tapered at apex.

Spermatheca (fig. 19): Basal part pear-shaped; apical part slender and tapered towards apex.

Discussion: see discussion of *A. malaysicum* n. sp. and *A. malayanum* n. sp.

Derivatio nominis: dedicated to M. T. Jaccoud, Geneva, who has found this and further new species.

Types: MALAYA, Pahang, Bukit Freser's, 1280 m, 17.IX.1972, leg. Jaccoud, holotype σ N. 3093, 16 σ and 7 φ paratypes N. 3094-3116 in GM, 5 σ and 4 φ paratypes N. 3117-3125 in AC.

Agathidium (*s. str.*) *brahmano* n. sp.

Figs 26, 40, 46a, 46b

Length 2.7-2.8 mm (holotype σ 2.8 mm). Dorsum uniformly reddish-brown; venter reddish-brown, paler at the mesosternum; antennae and legs testaceous. Microreticulation absent. Puncturation fine and sparse on head and pronotum, nearly absent on elytra.

Head: Punctures very small and superficial, spaced from each other by 5-8 times their own diameter. Rimmed at the antero-lateral margins. Clypeal line absent. 3rd antennal segment 1.5 times as long as the 2nd and shorter than 4th + 5th (fig. 26); Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: Punctures as small as on head but sparser, spaced from each other by 6-10 times their own diameter. 1.6 times as broad as head, not very transverse ($W/L = 1.35$) but very convex ($W/H = 1.43$). Anterior margin slightly bent. Lateral outline very broadly rounded. Holotype: length 0.90 mm, width 1.22 mm, height 0.85 mm.

Elytra: Punctures sparser and more superficial than on pronotum. As broad as pronotum, as broad as long and not very convex ($W/H = 1.83$). Lateral outline with slight humeral angle. Sutural striae absent. Holotype: length 1.25 mm, width 1.25 mm, height 0.68 mm.

Metathoracic wings present. Meso- and metasternum: median carina present, lateral lines absent, femoral lines incomplete.

Legs: Male hind femora simple. Tarsal formula σ 5-5-4, φ 5-4-4.

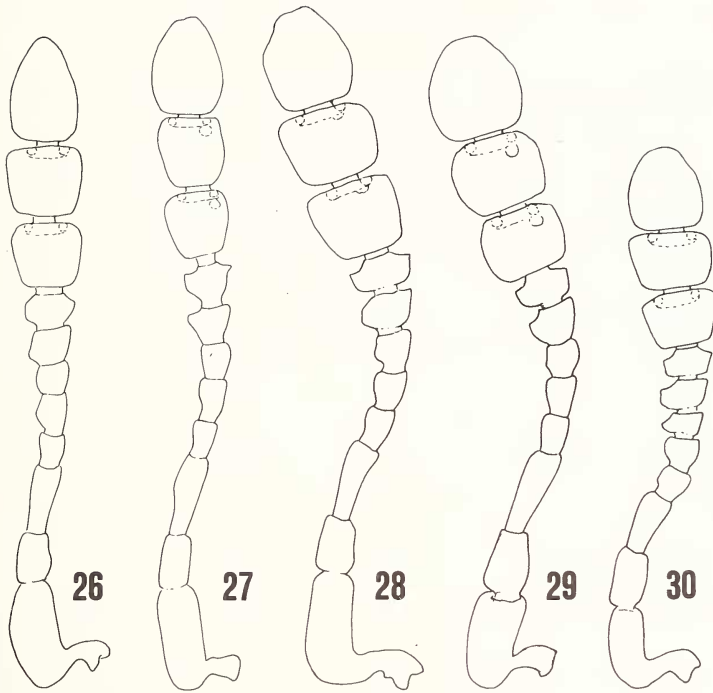
Male copulatory organ (figs 46a-b): Aedeagus slender, with hook-like proximal part, very peculiar lateral outline, lateral margins convergent into a rounded tip; ventral piece bifid. Parameres slender, enlarged near their apex.

Spermatheca (fig. 40): Basal part long and stout; apical part slender and small.

Discussion: *A. brahmano* n. sp. is closely related to *A. urbanii* Ang. & Dmz. and *A. darjeelingense* Ang. & Dmz. (1981) by habitus, colour of dorsum, puncturation characters, shape of the male hind femora, presence of wings, absence of sutural striae. The resolute separation of these three species must be based on aedeagus characters.

Types: INDIA, Assam, Manas, 200 m, 22.X.1978, leg. Besuchet & Löbl, holotype σ N. 3136 in GM, 1 φ paratype N. 3117 in AC; same collecting data, 21.X.1978, 1 σ and 1 φ paratypes N. 3138, 3139 in GM, 1 σ paratype N. 3140 in AC.

Distribution: India (Assam).



FIGS 26-30.

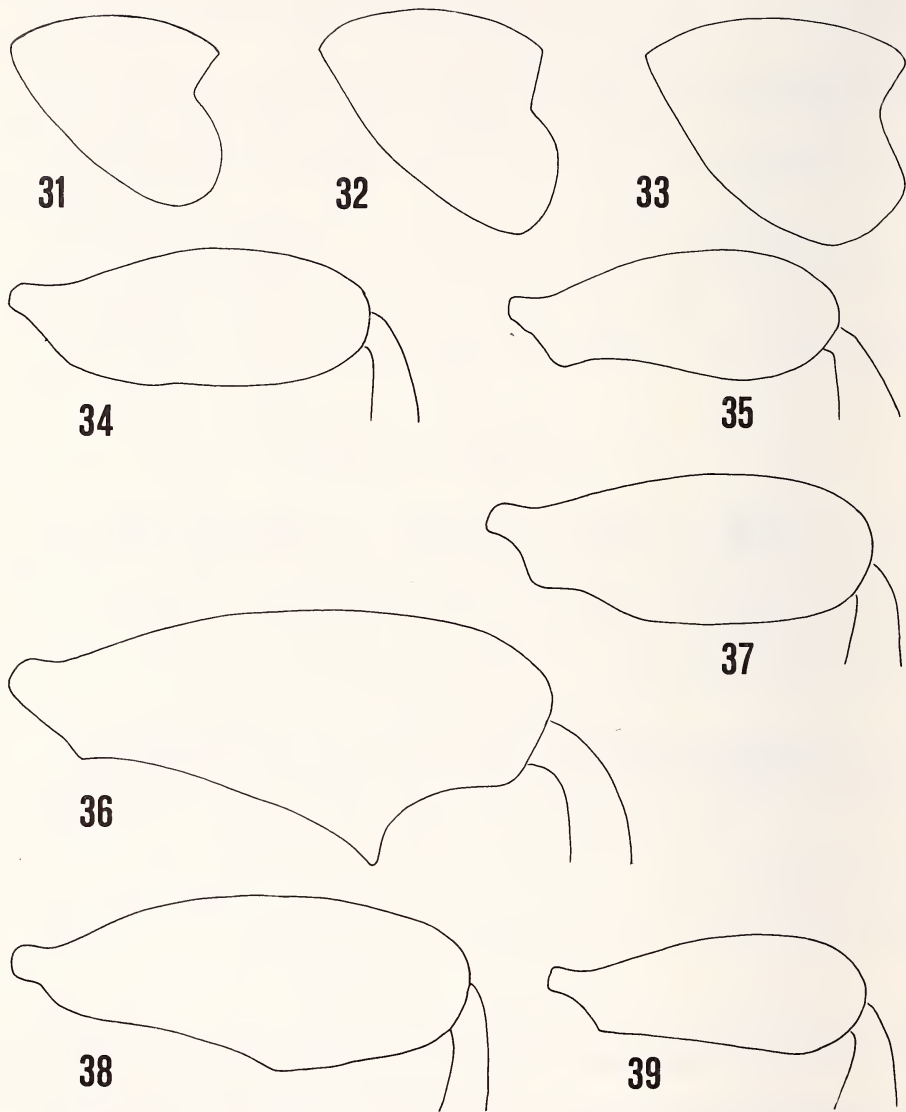
Antenna of: 26, *Agathidium brahmano* n. sp.; 27, *A. pseudomadurens* n. sp.; 28, *A. shillongense* n. sp.; 29, *A. madurense* Port.; 30, *A. pseudomontanellum* n. sp.

Agathidium (*s. str.*) *khasicum* Ang. & Dmz.

Agathidium (*s. str.*) *khasicum* Angelini & De Marzo, 1984, *Revue suisse Zool.* 91 (3): 555.

Types: This species has been recently described on the basis of material from both Darjeeling and Meghalaya. The collecting data of the specimens from Meghalaya (expedition Besuchet & Löbl, 25.X.-5.XI.1978) are: INDIA, Meghalaya, Shillong, 1850-1950 m, 30.X.1978, leg. Besuchet & Löbl, holotype ♂ N. 3174 and 1♂ paratype N. 3175 in GM, 1♂ and 1♀ paratypes N. 3176, 3177 in AC; Meghalaya, Khasi hills, Mawphlang, 1800 m, 28.X.1978, leg. Besuchet & Löbl, 1♂ and 1♀ paratypes N. 3178, 3179 in GM.

Distribution: India (Darjeeling and Meghalaya).



FIGS 31-39.

Lateral outline of pronotum of: 31, *Agathidium lebongense* Ang. & Dmz.; 32, *A. shillongense* n. sp.;
 33, *A. madurensense* Port. Male hind femur of: 34, *A. meghalayanum* Ang. & Dmz.;
 35, *A. lebongense* Ang. & Dmz.; 36, *A. pseudomadurensense* n. sp.; 37, *A. shillongense* n. sp.;
 38, *A. madurensense* Port.; 39, *A. pseudomontanellum* n. sp.

Agathidium (s. str.) meghalayanum Ang. & Dmz.

Figs 34, 41

Agathidium (s. str.) meghalayanum Angelini & De Marzo, 1981, *Entomol. Basiliensia* 6: 290-292.

Types: This species was described on the basis of material from Meghalaya (Manophlang and Shillong), deposited in Basel Museum and AC.

New material: INDIA, Meghalaya, Khasi hills, above Shillong, north versant, 1850-1950 m, 25.X.1978, leg. Besuchet & Löbl, 4 exx. in GM, 1 ex. in AC; same collecting data, 30.X.1978, 4 exx. in GM, 2 exx. in AC; Meghalaya, above Cherrapunjee, 1200 m, 26.X.1978, leg. Besuchet & Löbl, 1 ex. in GM.

Remarks: The new material includes females of this species, which were unknown. Male hind femur: fig. 34; spermatheca: fig. 41. Tarsal formula ♀: 5-4-4.

Distribution: India (Meghalaya).

Agathidium (s. str.) lebongense Ang. & Dmz.

Figs 31, 35

Agathidium (s. str.) lebongense Angelini & De Marzo, 1981, *Entomol. Basiliensia* 6: 288-290.

Types: This species was described on the basis of material from Darjeeling (Lebong), deposited in Basel Museum and AC.

New material: INDIA, Meghalaya, Khasi hills, above Shillong, 1850-1950 m, 25.X.1978, leg. Besuchet & Löbl, 1 ex. in GM, 1 ex. in AC.

Remarks: The new specimens fully agree with the description of the types, except the lower length of one of them (2,6 mm). Lateral outline of pronotum: fig. 31; male hind femur: fig. 34.

New record for Meghalaya.

Agathidium (s. str.) pseudomadurensis n. sp.

Figs 27, 36, 42, 51, 52

Length 3.5-4.15 mm (holotype ♂ 4.15 mm). Dorsum uniformly black; venter reddish brown; antennae testaceous with segments 7-11 black; legs testaceous. Microreticulation absent. Puncturation fine and sparse on the whole dorsum.

Head: Punctures very small and superficial, spaced from each other by 5-8 times their own diameter. Antero-lateral margins strongly rimmed. Clypeal line absent. 3rd antennal segment 1.6 times as long as the 2nd and as long as 4th + 5th (fig. 27); Hamann's organ: gutter with one vesicle in both 9th and 10th antennal segments.

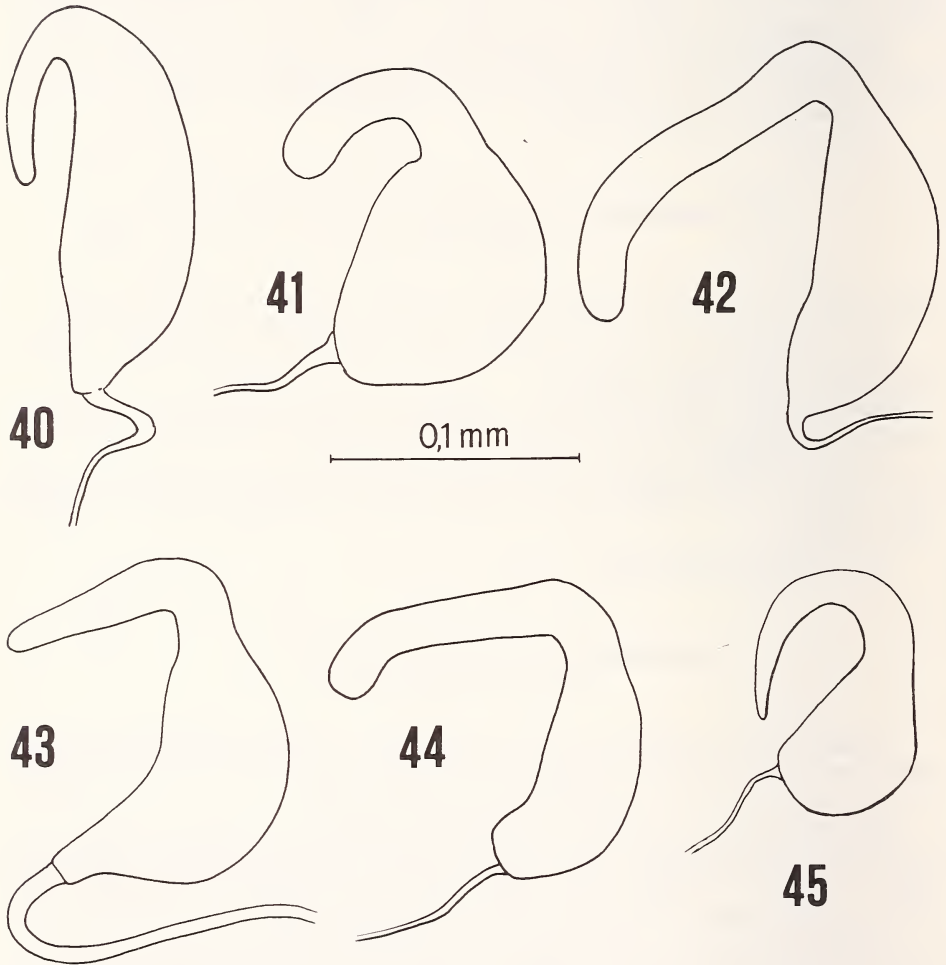
Pronotum: Punctures a little larger and more impressed than on head, spaced from each other by 3-8 times their own diameter. 1.5 times as broad as head, not very transverse (W/L = 1.3) but very convex (W/H = 1.44). Anterior margin slightly bent. Lateral outline very broadly rounded. Holotype: length 1.50 mm, width 1.95 mm, height 1.35 mm.

Elytra: Punctures a little larger and more impressed than on pronotum, spaced from each other by 8-10 times their own diameter. A little narrower than pronotum, as broad as long and not very convex (W/H = 1.86). Lateral outline with weak humeral angle. Sutural striae absent. Holotype: length 1.90 mm, width 1.92 mm, height 1.03 mm.

Metathoracic wings present. Meso- and metasternum: median carina present, lateral lines absent, femoral lines incomplete.

Legs: Male hind femora with sharp tooth (fig. 36). Tarsal formula σ 5-5-4, φ 5-4-4.

Male copulatory organ (figs 51-52): Aedeagus slender, with twisted proximal part, lateral margins sinuate, apex truncate, bifid ventral piece. Parameres slender, folded at apex.



FIGS 40-45.

Spermatheca of: 40, *Agathidium brahmano* n. sp.; 41, *A. meghalayanum* Ang. & Dmz.; 42, *A. pseudomadurensis* n. sp.; 43, *A. shillongense* n. sp.; 44, *A. madurensis* Port.; 45, *A. pseudomontanellum* n. sp.

Spermatheca (fig. 42): Basal and apical parts nearly alike in length; the basal one stout, the apical one slender.

Discussion: *A. pseudomadurens* n. sp. is closely related to *A. madurens* Port., *A. shillongense* Ang. & Dmz. and *A. varuna* Ang. & Dmz., from which it differs in larger size, black colouring of dorsum and shape of the male hind femora.

Types: INDIA, Tamil Nadu, Palni hills, Kodaikanal, 2100 m, 11.XI.1972, leg. Besuchet, Löbl & Mussard, holotype ♂ N. 3405 and 1 ♀ paratype N. 3406 in GM, 1♂ paratype N. 3407 in AC; Tamil Nadu, Palni hills, south Kodaikanal, 2200 m, 12.XI.1972, leg. Besuchet, Löbl & Mussard, 1♂ paratype N. 3408 in GM; Tamil Nadu, Palni hills, Berijam lake, 2150 m, 14.XI.1972, leg. Besuchet, Löbl & Mussard, 1♂ paratype N. 3409 in GM, 1♀ paratype N. 3410 in AC; Kerala, Cardamon hills, Muttapatti near Munnar, 1700 m, 24.XI.1972, leg. Besuchet, Löbl & Mussard, 1♂ paratype N. 3411 in GM.

Distribution: India (Tamil Nadu and Kerala).

***Agathidium* (s. str.) *shillongense* n. sp.**

Figs 28, 32, 37, 43, 47, 48

Length 2.8-3.0 mm (holotype ♂ 3.0 mm). Dorsum uniformly reddish-brown, or darker at head and pronotal discum; venter reddish-brown; antennae testaceous with segments 7-11 darker; legs testaceous. Microreticulation absent. Whole dorsum punctate.

Head: Punctures very small and superficial, spaced from each other by 4-8 times their own diameter. Antero-lateral margins rimmed. Clypeal line absent. 3rd antennal segment 1.5 times as long as the 2nd and as long as 4th+5th (fig. 28); Hamann's organ: gutter with a very small vesicle in both 9th and 10th antennal segments.

Pronotum: Punctures much larger and impressed than on head, spaced from each other by 3-10 times their own diameter. 1.5 times as broad as head, moderately transverse (W/L = 1.48) and very convex (W/H = 1.48). Anterior margin slightly bent. Lateral outline nearly angulate (fig. 32). Holotype: length 1.00 mm, width 1.48 mm, height 1.00 mm.

Elytra: Punctures large but superficial, spaced from each other by 2-5 times their own diameter. As broad as pronotum, nearly as broad as long and moderately convex (W/H = 1.78). Lateral outline with weak humeral angle. Sutural striae absent. Holotype: length 1.42 mm, width 1.48 mm, height 0.83 mm.

Metathoracic wings present. Meso- and metasternum: median carina present, lateral lines absent, femoral lines incomplete.

Legs: Male hind femora simple (fig. 37). Tarsal formula ♂ 5-5-4, ♀ 5-4-4.

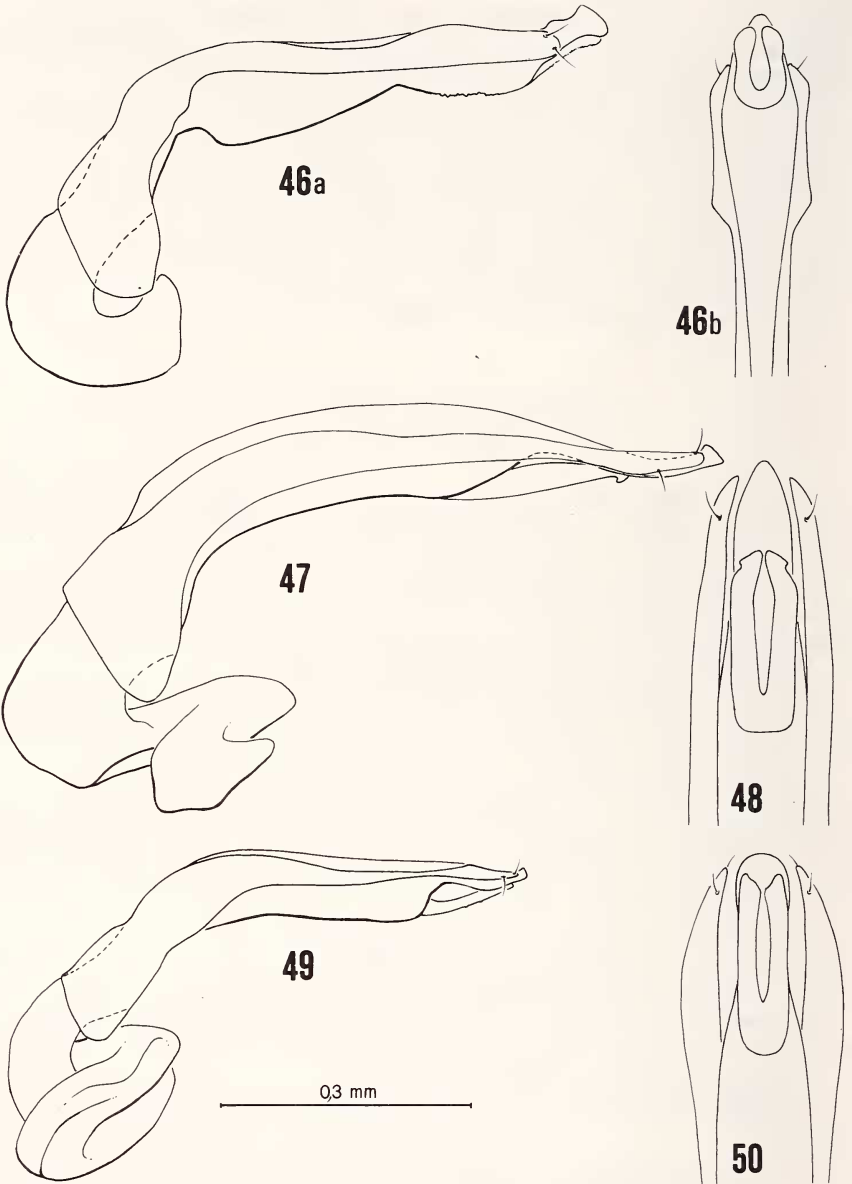
Male copulatory organ (figs 47-48): Aedeagus slender, with twisted proximal part, lateral margins sinuate and convergent into a broadly rounded tip; bifid ventral piece. Parameres slender, gently tapered towards apex.

Spermatheca (fig. 43): Basal part stout, protruding towards the duct; apical part short and slender.

Discussion: *A. shillongense* n. sp. is similar to *A. madurens* Port. and *A. varuna* Ang. & Dmz. in size, colour and antennal characters; but it sets apart by outline of pronotum and shape of male hind femora. See also discussion of *A. pseudomadurens* n. sp.

Types: INDIA, Meghalaya, Khasi hills, above Shillong, 1850-1950 m, 30.X.1978, leg. Besuchet & Löbl, holotype ♂ N. 3164, 1♂ and 1♀ paratypes N. 3165, 3166 in GM, 1♂ paratype N. 3168 in AC; same collecting data, 25.X.1978, 1♂ and 2♀ paratypes N. 3169-3171 in GM, 1♂ and 1♀ paratypes N. 3172, 3173 in AC.

Distribution: India (Meghalaya).



FIGS 46-50.

Male copulatory organ (lateral view and ventral view of apex) of:
 46.a-b, *Agathidium brahmano* n. sp.; 47-48, *A. shillongense* n. sp.;
 49-50, *A. pseudomontanellum* n. sp.

Agathidium (s. str.) madurense Port.

Figs 29, 33, 38, 44, 53, 54

Agathidium (Cyphocele) madurense Portevin, 1937, *Revue fr. Ent.* 4: 33.*Agathidium (s. str.) madurense*, HLISNIKOVSKY 1964, *Acta ent. Mus. natn. Pragae*, suppl. 5: 159-160.

R e d e s c r i p t i o n :

Length 3.2-3.3 mm (holotype ♂ 3.3 mm). Dorsum reddish-brown, paler at sides of pronotum and elytra, and along the elytral suture; sometimes the elytra are darker; venter reddish-brown; antennae testaceous with segments 7-11 black; legs testaceous. Microreticulation absent. Whole dorsum with fine and sparse puncturation.

Head: Punctures small and superficial, spaced from each other by 4-6 times their own diameter. Antero-lateral margins strongly rimmed. Clypeal line absent. 3rd antennal segment 1.4 times as long as the 2nd and longer than 4th + 5th (fig. 29); Hamann's organ: gutter with one vesicle in both 9th and 10th antennal segments.

Pronotum: Punctures a little larger and more impressed than on head, spaced from each other by 4-6 times their own diameter. 1.5 times as broad as head, not very transverse ($W/L = 1.39$) and moderately convex ($W/H = 1.6$). Anterior margin slightly bent. Lateral outline very broadly rounded (fig. 33). Holotype: length 1.15 mm, width 1.60 mm, height 1.00 mm.

Elytra: Punctures a little larger than on pronotum, spaced from each other by 4-8 times their own diameter. A little narrower than pronotum, nearly as broad as long and moderately convex ($W/H = 1.64$). Lateral outline with weak humeral angle. Sutural striae absent. Holotype: length 1.50 mm, width 1.55 mm, height 0.94 mm.

Metathoracic wings present. Meso- and metasternum: median carina present, lateral lines absent, femoral lines incomplete.

Legs: Male hind femora with weak tooth at middle length of their posterior margin (fig. 38). Tarsal formula ♂ 5-5-4, ♀ 5-4-4.

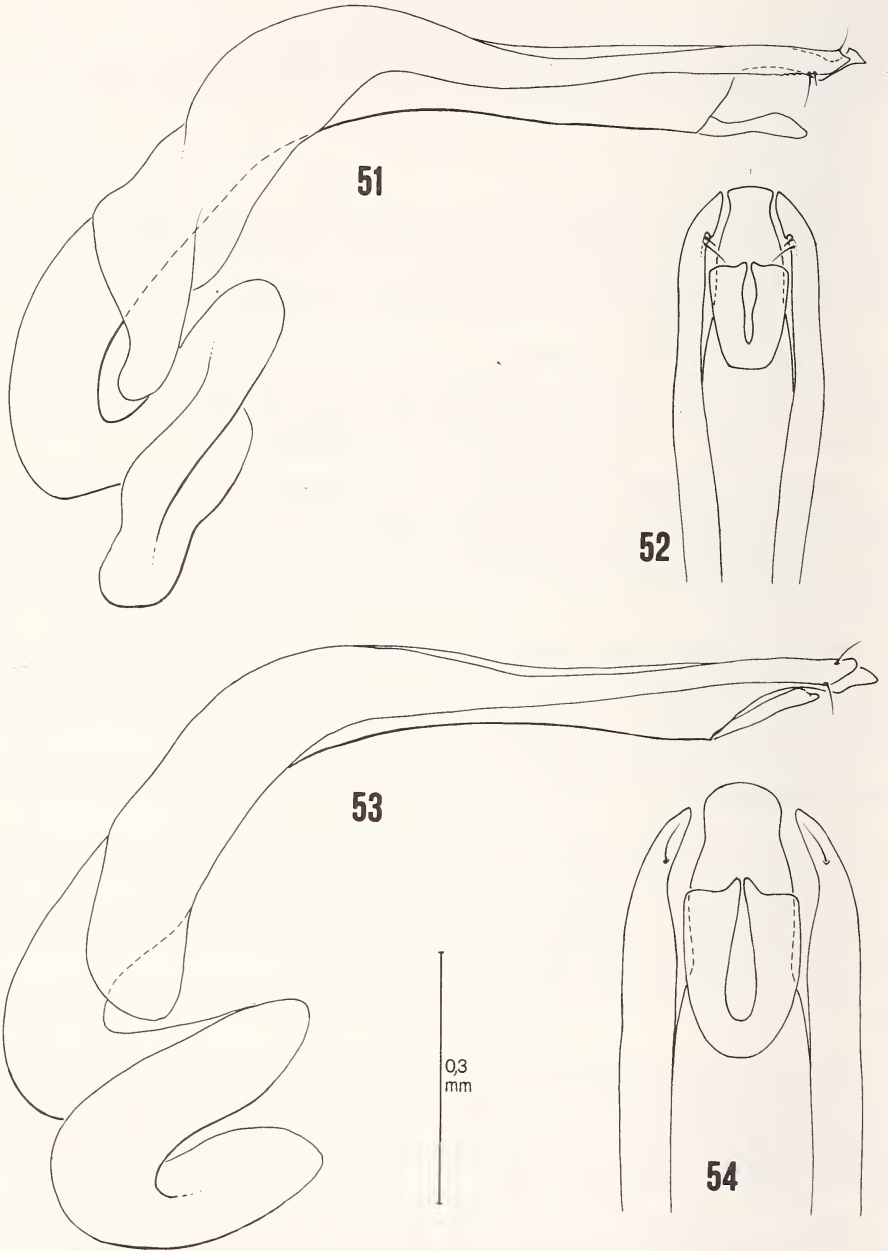
Male copulatory organ (figs 53-54): Aedeagus slender, with spiral-like proximal part, lateral margins sinuate and convergent into a large rounded tip; ventral piece bifid. Parameres slender, tapered towards apex.

Spermatheca (fig. 44): Basal part moderately stout; apical part slender, as long as the former.

Discussion: We have esteemed suitable to redescribe this species because of the rather concise original description. *A. madurense* Port. is substantially undistinguishable on the basis of the external features from *A. varuna* Ang. & Dmz. (1984a, p. 554, figs 42-43), but the male copulatory organ is somewhat different. See also discussion of *A. pseudomadurense* n. sp. and *A. shillongense* n. sp.

Types: *A. madurense* Port. was described on the basis of 2 exx. from Tamil Nadu (Chambaganor). We have examined 1♂, deposited in the general collection of the Paris Museum.

New material: INDIA, Tamil Nadu, Palni hills, 10 km N/O Kodaikanal, 2150 m, 15.XI.1972, leg. Besuchet, Löbl & Mussard, 1♂ in GM; Tamil Nadu, Palni hills, Kodaikanal, 2100 m, 11.XI.1972, leg. Besuchet, Löbl & Mussard, 1♀ in AC.



FIGS 51-54.

Male copulatory organ (lateral view and ventral view of apex) of:
 51-52, *Agathidium pseudomadurense* n. sp.; 53-54, *A. madurense* Port.

Agathidium (s. str.) pseudomontanellum n. sp.

Figs 30, 39, 45, 49, 50

Length 2.25-2.45 mm (holotype ♂ 2.45 mm). Dorsum uniformly black; venter reddish-brown, paler on mesosternum; antennae testaceous, with segments 7-II black; legs testaceous. Microreticulation absent. Whole dorsum with very small punctures.

Head: Punctures very small and superficial, spaced from each other by 6-10 times their own diameter. Clypeal line absent. 3rd antennal segment as long as the 2nd and as 4th-5th (fig. 30); Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: Puncturation as on head. 1.6 times as broad as head, moderately transverse (W/L = 1.46) and moderately convex (W/H = 1.67). Anterior margin slightly bent. Lateral outline broadly rounded. Holotype: length 0.80 mm, width 1.17 mm, height 0.70 mm.

Elytra: Puncturation as on head and pronotum; short and superficial lines are interposed to the punctures. As broad as pronotum, as broad as long and not very convex (W/H = 1.85). Lateral outline with weak humeral angle. Sutural striae absent. Holotype: length 1.17 mm, width 1.15 mm, height 0.62 mm.

Metathoracic wings present. Meso- and metasternum: median carina present, lateral lines absent, femoral lines incomplete.

Legs: Male hind femora simple (fig. 39). Tarsal formula ♂ 5-5-4, ♀ 5-4-4.

Male copulatory organ (figs 49-50): Aedeagus slender, with convolute proximal part, lateral margins sinuate, broadly rounded tip, bifid ventral piece. Parameres slender, flattened and enlarged near the apex.

Spermatheca (fig. 45): Basal part pear-shaped; apical part slender.

Discussion: *A. pseudomontanellum* n. sp. is very similar to *A. montanellum* Hliss. in several external characters; it differs from the latter in lack of lateral lines of mesosternum, shape of male hind femora and presence of very small punctures on dorsum.

Derivatio nominis: referring to the similarity to *A. montanellum*.

Types: INDIA, Tamil Nadu, Nilgiri, Ootacamund, 21.XI.1972, 2150-2200 m, leg. Besuchet, Löbl & Mussard, holotype ♂ N. 3404 in GM, 1 ♂ paratype N. 5526 in AC; Tamil Nadu, Palni Hills, Berijam Lake, 2150 m, 14.XI.1972, leg. Besuchet, Löbl & Mussard, 1 ♀ paratype N. 5527 in GM.

Distribution: India (Tamil Nadu).

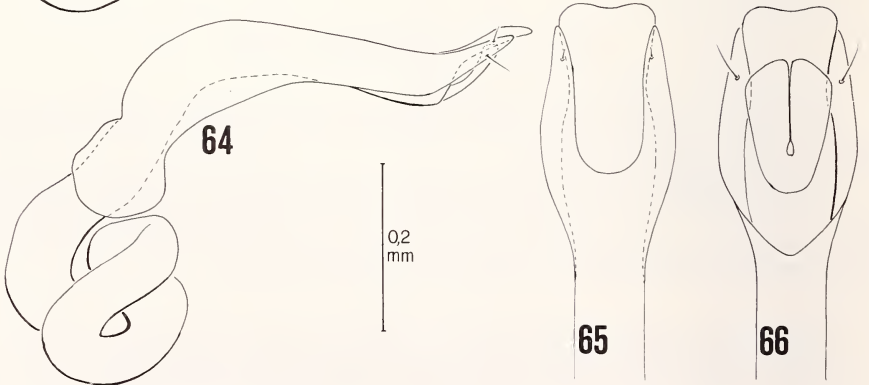
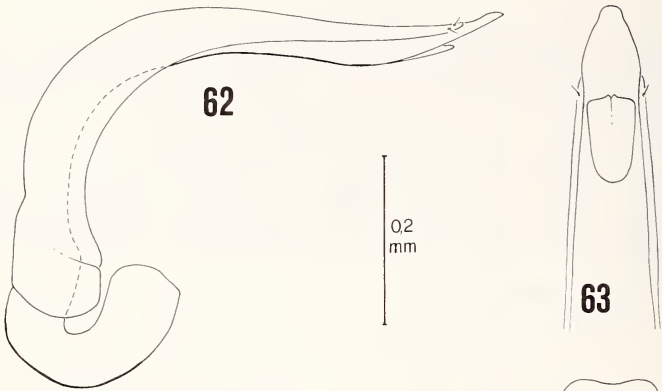
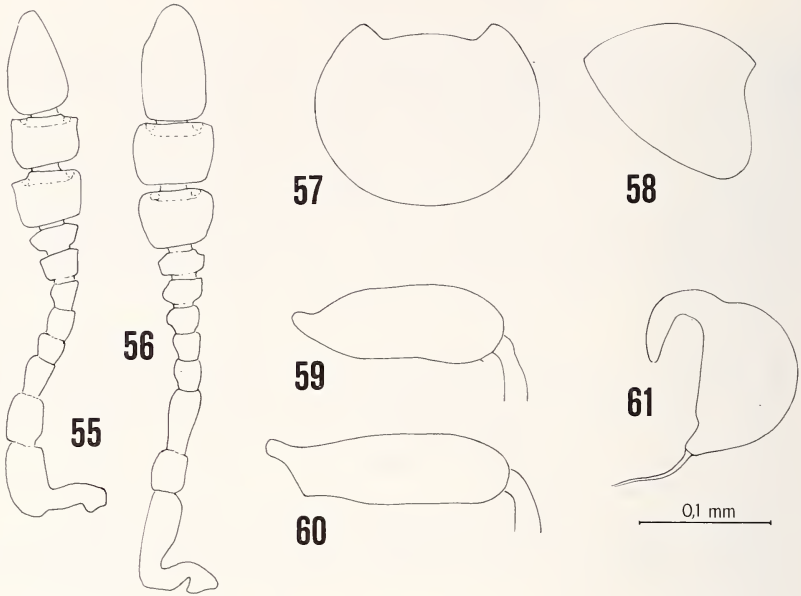
DESIGNATION OF **Microceble** n. subg.

Type species: *Agathidium grouvellei* Port.

Etymology: from the Greek *mikros* (small) and *keble* (head), referring to the most apparent of its distinctive features.

Systematic position: *Microceble* n. subg. is closely related to the subg. *Agathidium* s. str., *Chaetoceble* and *Euryceble* by the presence of femoral lines of metasternum, but it differentiates itself, owing to both the small size of the head (compared to pronotum) and the clypeal line characteristics, as shown in the following key:

1. Metasternum without femoral lines, never greatly reduced in length (metacoxae always distant from the mesocoxae); lateral outline of elytra with sharp humeral angle subg. *Cyphoceble*, *Rhabdoelytrum*, *Neoceble*, *Stigmoceble*



- 1'. Metasternum either with femoral lines or so greatly reduced (metacoxae close to the mesocoxae) that the femoral lines cannot be distinguished; lateral outline of elytra with weak humeral angle 2
2. Head comparatively large: width ratio pronotum/head = 1.16-1.5, higher in rare instances; clypeal line unbroken and usually not very marked, or absent altogether subgg. *Agathidium* s. str., *Chaetoceble*, *Euryceble*
- 2'. Head comparatively small: width ratio pronotum/head = 1.6-2.1; clypeal line broken medially, reduced to a couple of oblique crests (one at each side of clypeus), more or less long; sometimes the clypeal line is unbroken and very marked subg. *Microceble*

Head size: In *Microceble* n. subg. the width ratio pronotum/head is somewhat high, and this constitutes its most apparent feature. In fact, this ratio ranges between the values 1.6 and 2.1, the intermediate subrange 1.8-1.9 being the richest. In the closely related subg. *Agathidium* s. str., the width ratio pronotum/head is usually between the lower values 1.16-1.5, except in one species, *A. pseudomontanellum* n. sp. (1.6). The latter cannot be included in the subg. *Microceble* because of the absolute lack of clypeal line.

Clypeal line: In most *Microceble* species the clypeal line is reduced to a couple of short crests, one at each side of the clypeus; sometimes these crests are longer, but likewise they do not meet medially; in other instances the clypeal line is unbroken and very marked, and the clypeus distinctly emerges from the rest of the head surface.

Antero-lateral rim of head: 31 species of *Microceble*, out of 35, possess it. Within the subg. *Agathidium* s. str., a similar rim is present only in 14 species of SE Asia (including *A. madurense* Port.), all closely related to one another.

Head dimples: The presence of one slight dimple at each side of clypeus is common to 30 species of *Microceble*.

Membranous wings: present in 31 species.

Spermatheca shape: in most species the basal part is globose or pear-shaped.

Features common to all the species: Eyes hemispherical and protruberant. Tarsal formula: ♂ 5-5-4, ♀ 5-4-4. Tarsomeres cylindrical (not distally dilated). Sutural striae of elytra absent.

Habitat: The collecting data suggest that the *Microceble* species occur in a particular habitat, probably in comparatively dry environments. They were not usually found together with other Anisotomini, and in Himalaya they were usually collected at comparatively low altitudes.

FIGS 55-66.

Antenna of: 55, *Agathidium pileti* n. sp.; 56, *A. manasicum* n. sp. Pronotum (dorsal view and lateral outline) of: 57-58, *A. pileti* n. sp. Male hind femur of: 59, *A. pileti* n. sp.; 60, *A. manasicum* n. sp. Spermatheca of: 61, *A. manasicum* n. sp. Male copulatory organ (lateral view and dorsal and/or ventral view of apex) of: 62-63, *A. pileti* n. sp.; 64-66, *A. manasicum* n. sp.

Agathidium (Microceble) pileti n. sp.

Figs 55, 57, 58, 59, 62, 63

Length 2.55 mm (holotype ♂). Dorsum uniformly reddish-brown; venter paler; antennae and legs testaceous. Whole dorsum without microreticulation and with very small and sparse punctures.

Head: Punctures very small and superficial, spaced from each other by 2-10 times their own diameter. Anterior-lateral margins strongly rimmed. One slight dimple behind each of these margins. A step replaces the clypeal line. 3rd antennal segment 0.8 times as long as the 2nd and shorter than $4^\circ + 5^\circ$ (fig. 55). Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: Punctures as small as on head, spaced from each other by 1-10 times their own diameter. 1.95 times as broad as head, not very transverse ($W/L = 1.31$) but very convex ($W/H = 1.44$). Anterior margin slightly bent (fig. 57). Lateral outline nearly angulate (fig. 58). Holotype: length 0.92 mm, width 1.21 mm, height 0.84 mm.

Elytra: Punctures as small as on head, spaced from each other by 3-5 times their own diameter. As broad as pronotum, as broad as long and moderately convex ($W/H = 1.69$). Lateral outline with weak humeral angle. Sutural striae absent. Holotype: length 1.12 mm, width 1.22 mm, height 0.72 mm.

Metathoracic wings present. Meso- and metasternum: median carina present, lateral lines incomplete, femoral lines incomplete.

Legs: Male hind femora simple (fig. 59). Tarsal formula ♂ 5-5-4, ♀ unknown.

Male copulatory organ (figs 62-63): Aedeagus slender, with hook-like proximal part, lateral margins a little sinuate and convergent into a small rounded tip; ventral piece not bifid and with a short median split. Parameres slender, gently tapering towards apex.

Discussion: Within the *Microceble* species, *A. pileti* n. sp. is closely related to *A. maculatum* Ang. & Cooter and *A. arcuatum* Ang. & Cooter by the presence of sharp and unbroken clypeal line; it differs from *A. arcuatum* in lack of head microreticulation, from *A. maculatum* in both lack of elytral spots and features of meso- and metasternum.

Derivatio nominis: Dedicated to Mr. R. Pilet (Geneva), who has collected the holotype.

Type: MALAYSIA, Malaya, Johor, Kota Tinggi, outskirts of Dohol, 23.VI.1969, leg. Pilet, holotype ♂ N. 3135 in GM.

Distribution: Malaysia (Malaya).

Agathidium (Microceble) laticorne Port.

Agathidium (Cyphocele) laticorne Portevin, 1922, *Bull. Mus. natn. Hist. nat. Paris* 28: 58.

Agathidium (Cyphocele) laticorne: PORTEVIN 1928, *Treubia*, 10: 32.

Agathidium (s. str.) laticorne: HATCH 1929, *Cat. Junk* 105: 66.

Agathidium (s. str.) laticorne: HLISNIKOVSKY 1964, *Acta ent. Mus. natn. Pragae*, suppl. 5: 200-202.

Agathidium (s. str.) ceylanicum HLISNIKOVSKY 1972, *Mitt. schweiz. ent. Ges.* 45 (1-3): 131-132.

Agathidium (s. str.) laticorne: ANGELINI & DE MARZO 1983, *Entomol. Basiliensia* 8: 162.

Agathidium (s. str.) laticorne: ANGELINI & DE MARZO 1984a, *Revue suisse Zool.* 91: 559.

Agathidium (s. str.) laticorne: ANGELINI & DE MARZO 1984b, *Annl. hist. nat. Mus. natn. hung.* 76: 167.

Agathidium (s. str.) laticorne: ANGELINI & DE MARZO 1985, *Revue suisse Zool.* 92: 70.

Agathidium (s. str.) laticorne: ANGELINI & COOTER 1985, *Sarawak Mus. Journ.*, 34: 131.

Agathidium (s. str.) laticorne: ANGELINI & COOTER 1986, *Entomologist's mon. Mag.*, 122: 37.

Redescription

Length 3.0-3.3 mm (type examined: 3.1 mm). Dorsum dark reddish-brown, with pronotal discum and elytral sides black, or uniformly black, rarely uniformly reddish-brown; venter reddish-brown; antennae with darker club; legs reddish-brown. Whole head dorsum microsculptured (striolate), pronotum and elytra smooth. Whole dorsum with fine and distinct puncturation.

Head: Microsculpture clear and uniform. Punctures small and sparse, spaced from each other by 4-8 times their own diameter, in the type, larger, more impressed and dense in the other specimens. Antero-lateral margins distinctly rimmed. One short crest and one dimple at each side of clypeus. 3rd antennal segment 1.7 times as long as the 2nd and longer than 4th + 5th; Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: Traces of microreticulation in some specimens. Punctures small, superficial and sparse in the type, usually larger, more impressed and dense in the other specimens. 1.8 times as broad as head, moderately transverse ($W/L = 1.44$) and moderately convex ($W/H = 1.69$). Anterior margin slightly bent. Lateral outline very broadly rounded. Type examined: length 1.03 mm, width 1.49 mm, height 0.88 mm.

Elytra: Punctures as large, impressed and sparse as on pronotum. A little broader than pronotum, a little broader than long and moderately convex ($W/H = 1.78$). Lateral outline with weak humeral angle. Sutural striae absent. Type examined: length 1.40 mm, width 1.52 mm, height 0.85 mm.

Metatoracic wings present. Meso- and metasternum: median carina present, lateral lines absent, femoral lines incomplete.

Legs: Male hind femora with slight tooth. Tarsal formula σ 5-5-4, ♀ 5-4-4.

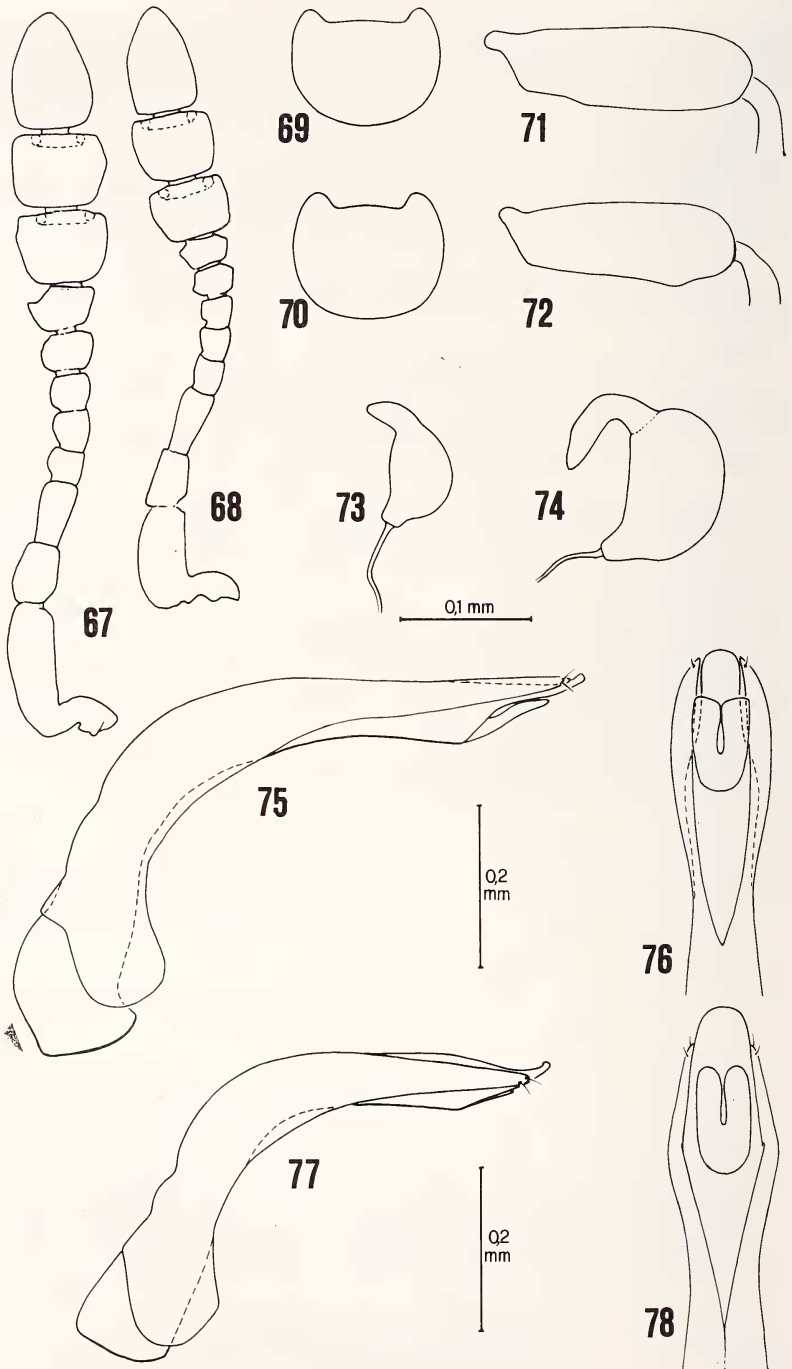
Male copulatory organ (ANGELINI & DE MARZO 1985, figs 104-105): Aedeagus comparatively stout, with proximal part simple and trifid apex; ventral piece large, deeply split medially. Parameres large at base, embracing the aedeagus.

Spermatheca (l. c., fig. 106): Basal part pear-shaped; apical part slender, moderately long.

Discussion: *A. laticorne* Port. is closely related to *A. semirufum* Ang. & Dmz. and *A. grouvellei* Port.; from *A. semirufum* it differs in size, dorsal colouring, head entirely striolate, shape of aedeagus apex; from *A. grouvellei* it differs in shape of aedeagus apex (ANGELINI & DE MARZO 1985, figs 59-61), lateral outline of pronotum, shape of male hind femora, width ratio pronotum/head.

Types: *A. laticorne* Port. was described on the basis of an unspecified number of specimens from Java (Buitenzorg, 1000 m, leg. Kannegieter), of which we have examined 1 σ deposited in the Paris Museum.

New material: INDIA, Assam, Gauhati, 200 m, 20.X.1978, leg. Besuchet & Löbl, 1 ex. in GM; Assam, Manas, 200 m, 21-23.X.1978, leg. Besuchet & Löbl, 26 ex. in GM, 2 ex. in AC; Meghalaya, between Mawsynram and Balat, 16 km from Mawsynram, 1000 m, 27.X.1978, leg. Besuchet & Löbl, 2 ex. in GM; Meghalaya, Nongpoh, 700 m, 5.XI.1978, leg. Besuchet & Löbl, 1 ex. in GM; Kerala, Cardamon Hills, Muttapatti near Munnar, 1700 m, 24.XI.1972, leg. Besuchet, Löbl & Mussard, 2 ex. in GM, 1 ex. in AC; Tamil Nadu, Palni Hills, 16 km east from Kodaikanal, 1400 m, 15.XI.1972, leg. Besuchet, Löbl & Mussard, 1 ex. in GM; Tamil Nadu, Anaimalai Hills, 18 km north from Valparai, 1250 m, 18.XI.1972, leg. Besuchet, Löbl & Mussard, 1 ex. in GM; Tamil Nadu, Nilgiri, 7 km east from Coonor, 1350 m, 19.XI.1972, leg. Besuchet, Löbl & Mussard, 3 ex. in GM; Tamil Nadu, Biligiri, Rangan Hills, N/E from Nilgiri, 10 km N/E from Dhimbam, 1200 m,



29.XI.1972, leg. Besuchet, Löbl & Mussard, 4 exx. in GM, 2 exx. in AC. MALAYSIA, Malaya, Perak, Sungei Simeï falls, Cameron Highlands, III.1977, leg. Jaccoud, 24 exx. in GM, 9 exx. in AC.

Distribution: Nepal, Bhutan, India (Garhwal, Kumaon, Darjeeling, Assam, Meghalaya, Orissa, Kerala, Tamil Nadu), Sri Lanka, Viet Nam, Malaysia (Malaya and Sarawak), Indonesia (Java and Sumatra). New record from Meghalaya, Kerala and Tamil Nadu.

***Agathidium (Microceble) manasicum* n. sp.**

Figs 56, 60, 61, 64, 65, 66

Length 2.7-3.0 mm (holotype ♂ 2.95 mm). Dorsum uniformly reddish-brown; venter reddish-brown, paler at mesosternum; antennae testaceous, with segments 9 and 10 darker; legs reddish-brown. Whole dorsum without microreticulation and with with very fine and sparse puncturation.

Head: Punctures very small and superficial, spaced from each other by 6-10 times their own diameter. Anterior-lateral margins rimmed. One short crest and one slight dimple at each side of clypeus. 3rd antennal segment 1.5 times as long as the 2nd and as long as 4th+5th (fig. 56). Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: Punctures as small as on head, sparser. 1.9 times as broad as head, not very transverse ($W/L = 1.23$) but very convex ($W/H = 1.44$). Anterior margin slightly bent. Lateral outline very broadly rounded. Holotype: length 1.05 mm, width 1.30 mm, height 0.90 mm.

Elytra: Only some punctures, somewhat large. As broad as pronotum, as broad as long and moderately convex ($W/H = 1.73$). Lateral outline with weak humeral angle. Sutural striae absent. Holotype: length 1.36 mm, width 1.30 mm, height 0.75 mm.

Metathoracic wings present. Meso- and metasternum: median carina present, lateral lines absent, femoral lines incomplete.

Legs: Male hind femora simple (fig. 60). Tarsal formula ♂ 5-5-4, ♀ 5-4-4.

Male copulatory organ (figs 64-66): Aedeagus slender, with convolute proximal part, bent up distally; lateral margins sinuate; apex truncate and slightly excavate; ventral piece with a long median split. Parameres stout, abruptly tapering near their apex.

Spermatheca (fig. 61): Basal part subglobose, with a tubercle at the duct connection; apical part slender.

Discussion: *A. manasicum* n. sp. is close related to *A. saundersi* Ang. & Cooter (1986) by head microreticulation (present only behind the clypeal margin), habitus, coloration and puncturation. They differ from each other in lateral outline of pronotum, 3rd/2nd ratio in antennal segments and shape of male copulatory organ and spermatheca.

FIGS 67-78.

Antenna of: 67, *Agathidium palnicum* n. sp.; 68, *A. assamense* n. sp. Pronotum (dorsal view) of: 69, *A. palnicum* n. sp.; 70, *A. assamense* n. sp. Male hind femur of: 71, *A. palnicum* n. sp.; 72, *A. assamense* n. sp. Spermatheca of: 73, *A. palnicum* n. sp.; 74, *A. assamense* n. sp. Male copulatory organ (lateral view and ventral view of apex) of: 75-76, *A. palnicum* n. sp.; 77-78, *A. assamense* n. sp.

Types: INDIA, Assam, Manas, 200 m, 22.X.1978, leg. Besuchet & Löbl, holotype ♂ N. 3153, 1♂ and 1♀ paratypes N. 3154, 3155 in GM, 1♂ and 1♀ paratypes N. 3156, 3157 in AC; same collecting data, 21.X.1978, 1♂ paratype N. 3158 in GM.

Distribution: India (Assam).

Agathidium (Microceble) palnicum n. sp.

Figs 67, 69, 71, 73, 75, 76

Length 2.7-3.25 mm (holotype ♂ 2.95 mm). Dorsum black or reddish-brown with paler sides; venter testaceous; antennae uniformly testaceous; legs reddish-brown. Whole dorsum without microreticulation and with fine and sparse puncturation.

Head: Punctures very small and superficial, spaced from each other by 4-6 times their own diameter. Anterior-lateral margins rimmed. One short crest and one dimple at each side of clypeus. 3rd antennal segment as long as the 2nd and shorter than 4th-5th (fig. 67). Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: Punctures as small as on head, spaced from each other by 4-6 times their own diameter. 1.7 times as broad as head, not very transverse ($W/L = 1.4$) and moderately convex ($W/H = 1.66$). Anterior margin slightly bent (fig. 69). Lateral outline very broadly rounded. Holotype: length 1.00 mm, width 1.40 mm, height 0.84 mm.

Elytra: Punctures somewhat larger than on pronotum, spaced from each other by 2-10 times their own diameter. As broad as pronotum, as broad as long and not very convex ($W/H = 2$). Lateral outline with weak humeral angle. Sutural striae absent. Holotype: length 1.30 mm, width 1.40 mm, height 0.70 mm.

Metathoracic wings absent. Meso- and metasternum: median carina very weak, lateral lines absent, femoral lines incomplete.

Legs: Male hind femora simple (fig. 71). Tarsal formula ♂ 5-5-4, ♀ 5-4-4.

Male copulatory organ (figs 75-76): Aedeagus slender, with simple proximal part, lateral margins sinuate and approached into a large rounded tip, bifid ventral piece. Parameres slender, tapering towards apex.

Spermatheca (fig. 73): Basal part subglobose, with a protuberance at the duct connection; apical part very short.

Discussion: *A. palnicum* n. sp. is similar to *A. assamense* n. sp. in habitus, coloration and punctuation; it differs from the latter in absence of metathoracic wings, shape of pronotum and width ratio pronotum/head. A doubtless identification of these two species must be based on the examination of male copulatory organ and spermatheca.

Types: INDIA, Tamil Nadu, Palni Hills, Berijam Lake, 23 km west of Kodaikanal, 2150 m, 14.XI.1972, leg. Besuchet, Löbl & Mussard, holotype ♂ N. 3377, 1♂ and 3♀ paratypes N. 3378-3381 in GM, 1♂ and 1♀ paratypes N. 3382-3383 in AC; Tamil Nadu, Palni Hills, Kodaikanal, 2100 m, 11.XI.1972, leg. Besuchet, Löbl & Mussard, 2♂ paratypes N. 3384-3385 in GM, 1♂ paratype N. 3386 in AC; Tamil Nadu, Palni Hills, above Kodaikanal, 2200 m, 12.XI.1972, leg. Besuchet, Löbl & Mussard, 1♀ paratype N. 3387 in GM; Tamil Nadu, Palni Hills, 7 km east of Kodaikanal, 1750 m, 12.XI.1972, leg. Besuchet, Löbl & Mussard, 1♂ and 2♀ paratypes N. 3388-3390 in GM, 1♀ paratype N. 3391 in AC; Tamil Nadu, Palni Hills, 10 km west of Kodaikanal, 2300-2350 m, 13.XI.1972, leg. Besuchet, Löbl & Mussard, 1♀ paratype N. 3392 in GM; Tamil Nadu, Palni Hills, 10 km N/W of Kodaikanal, 2150 m, 15.XI.1972, leg. Besuchet, Löbl & Mussard, 1♀ paratype N. 3393 in GM, 1♂ paratype N. 3394 in AC; Kerala, Kardamon Hills, Muttapatti near Munnar, 1700 m,

24.XI.1972, leg. Besuchet, Löbl & Mussard, 3♂ and 2♀ paratypes N. 3395-3399 in GM, 1♂ and 1♀ paratypes N. 3400-3401 in AC; Kerala, Cardamon Hills, 13 km N/W of Munnar, 1900 m, 26.XI.1972, leg. Besuchet, Löbl & Mussard, 1♂ and 1♀ paratypes N. 3402-3403 in GM.

Distribution: India (Kerala, Tamil Nadu).

Agathidium (Microceble) assamense n. sp.

Figs 68, 70, 72, 74, 77, 78

Length 2.9-3.1 mm (holotype ♂ 3.1 mm). Dorsum uniformly reddish-brown; venter paler; antennae testaceous, sometimes with segments 9 and 10 darker; legs reddish-brown. Microreticulation absent. Punctures very small on head and pronotum; elytra nearly lacking in puncturation.

Head: Punctures very small and superficial, spaced from each other by 2-6 times their own diameter. Anterior-lateral margins rimmed. One short crest and one slight dimple at each side of clypeus. 3rd antennal segment 1.2 times as long as the 2nd and as long as 4th + 5th (fig. 68). Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: Punctures similar in size to those of the head, but more superficiales and sparse. Twice as broad as head, not very transverse (W/L = 1.16) and moderately convex (W/H = 1.52). Anterior margin slightly bent (fig. 70). Lateral outline very broadly rounded. Holotype: length 1.20 mm, width 1.40 mm, height 1.00 mm.

Elytra: Only some very small punctures. Rather less broad than pronotum, nearly as broad as long and very convex (W/H = 1.28). Lateral outline with weak humeral angle. Sutural striae absent. Holotype: length 1.36 mm, width 1.28 mm, height 1.00 mm.

Metathoracic wings present. Meso- and metasternum: median carina present, lateral lines absent, femoral lines incomplete.

Legs: Male hind femora simple (fig. 72). Tarsal formula ♂ 5-5-4, ♀ 5-4-4.

Male copulatory organ (figs 77-78): Aedeagus slender, with proximal part simple, lateral margins convergent into a broadly rounded tip, bifid ventral piece. Parameres slender, gently tapering towards apex.

Spermatheca (fig. 74): Basal part subglobose, with a tubercle at the duct connection; apical part slender.

Discussion: See discussion of *A. palnicum* n. sp.

Types: INDIA, Assam, Manas, 200 m, 22.X.1978, leg. Besuchet & Löbl, holotype ♂ N. 3141, 3♂ and 3♀ paratypes N. 3142-3148 in GM, 2♂ and 2♀ paratypes N. 3149-3152 in AC.

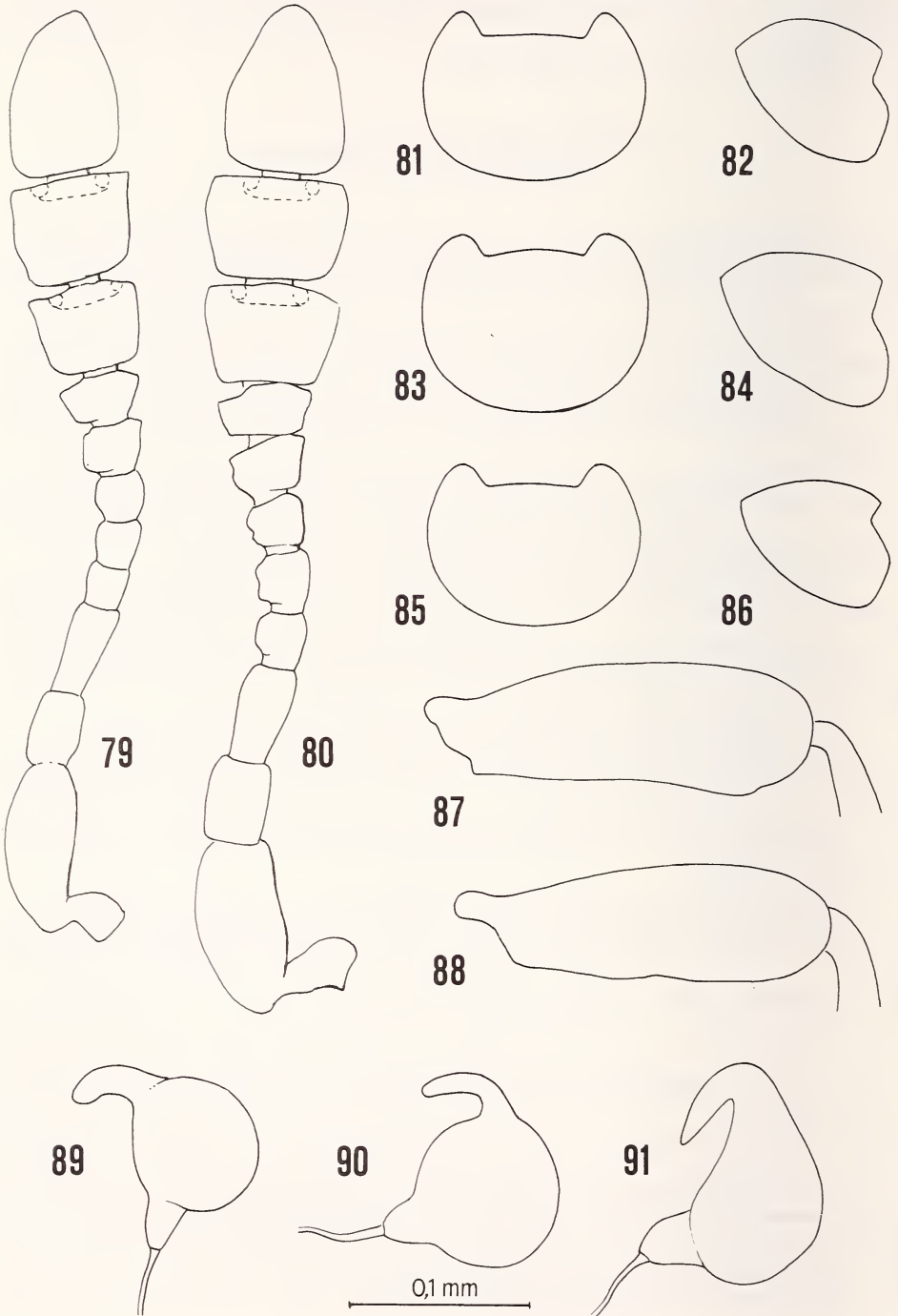
Distribution: India (Assam).

Agathidium (Microceble) tonkinense Ang. & Cooter

Agathidium (s. str.) tonkinense Angelini & Cooter, 1986, *Entomologist's mon. Mag.*, 122: 39.

Types: The following material, collected by researchers of Geneva Museum, has provided part of the types used to describe this new species: INDIA, Assam, Manas, 200 m, 21-23.X.1978, leg. Besuchet & Löbl, 2♂ and 1♀ paratypes in GM, 1♂ and 1♀ paratypes in AC. The remaining types come from Viet Nam.

Distribution: Viet Nam (Tonkin), India (Assam).



Agathidium (Microcele) mussardi n. sp.

Figs 79, 81, 82, 89, 92, 93, 94

Length 2.6-3.2 mm (holotype ♂ 3.1 mm). Dorsum more or less dark reddish-brown, paler at sides; venter reddish-brown, paler at mesosternum; antennae testaceous, with segments 7-11 black; legs reddish-brown. Microreticulation absent. Whole dorsum with distinct and regular puncturation.

Head: Punctures moderately large, impressed, spaced from each other by 2-4 times their own diameter. Anterior-lateral margins rimmed. One short crest and one slight dimple at each side of clypeus. 3rd antennal segment 1.3 times as long as the 2nd and as long as 4th + 5th (fig. 79). Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: Punctures as large and impressed as on head, spaced from each other by 3-6 times their own diameter. 1.9 times as broad as head, moderately transverse (W/L = 1.52) and moderately convex (W/H = 1.55). Anterior margin nearly rectilinear (fig. 81). Lateral outline broadly rounded (fig. 82). Holotype: length 1.00 mm, width 1.52 mm, height 0.98 mm.

Elytra: Punctures slightly more impressed than on pronotum, spaced from each other by 4-5 times their own diameter. Rather less broad than pronotum, nearly as broad as long and moderately convex (W/H = 1.83). Lateral outline with weak humeral angle. Sutural striae absent. Holotype: length 1.45 mm, width 1.41 mm, height 0.77 mm.

Metathoracic wings present. Meso- and metasternum: median carina slight, lateral lines absent, femoral lines incomplete.

Legs: Male hind femora simple. Tarsal formula ♂ 5-5-4, ♀ 5-4-4.

Male copulatory organ (figs 92-94): Aedeagus comparatively stout, with proximal part simple, apex bifid and ventrally extended with a median hook-like production; ventral piece bifid. Parameres stout, abruptly tapered at apex.

Spermatheca (fig. 89): Basal part globose, with long tubercle at the duct connection; apical part short.

Discussion: *A. mussardi* n. sp. is very similar to *A. biimpressum* Champ., *A. brahma* Ang. & Dmz. and *A. andrewesi* Port. in habitus, size, coloration, antennal characters and shape of male hind femora; it differs from *A. brahma* in the very different width ratio pronotum/head, from *A. brahma* and *A. andrewesi* in the puncturation; from *A. biimpressum* in the more transverse pronotum.

Derivatio nominis: dedicated to Dr. Robert Mussard (Geneva).

Types: INDIA, Tamil Nadu, Nilgiri, 15 km east of Conoor, 900 m, 19.XI.1972, leg. Besuchet, Löbl & Mussard, holotype ♂ N. 3180, 20♂ and 23♀ paratypes N. 3181-3223 in GM, 8♂ and 7♀ paratypes N. 3224-3238 in AC; Tamil Nadu, Anaimalai Hills, above Aliyar Dam, 1150 m, 18.XI.1972, leg. Besuchet, Löbl & Mussard, 10♂ and 8♀ paratypes N. 3239-3256 in GM, 3♂ and 3♀ paratypes N. 3257-3262 in AC; Tamil Nadu, Cardamon

Figs 79-91.

Antenna of: 79, *Agathidium mussardi* n. sp.;

80, *A. andrewesi* n. sp. Pronotum (dorsal view and lateral outline) of: 81-82, *A. mussardi* n. sp.;

83-84, *A. biimpressum* Champ.; 85-86, *A. andrewesi* n. sp. Male hind femur of:

87, *A. biimpressum* n. sp.; 88, *A. andrewesi* n. sp. Spermatheca of: 89, *A. mussardi* n. sp.;

90, *A. biimpressum* Champ.; 91, *A. andrewesi* n. sp.

Hills, 6 km N/E from Kumily, 3.XI.1972, leg. Besuchet, Löbl & Mussard, 1 ♀ paratype N. 3263 in GM; Tamil Nadu, Cardamon Hills, 2 km north from Kumily, 900 m, 4.XI.1972, leg. Besuchet, Löbl & Mussard, 4 ♂ and 11 ♀ paratypes N. 3264-3278 in GM, 3 ♂ and 3 ♀ paratypes N. 3279-3284 in AC; Tamil Nadu, Anaimalai Hills, Valparai, 1100 m, 20.XI.1972, leg. Besuchet, Löbl & Mussard, 2 ♂ and 2 ♀ paratypes N. 3368-3371 in GM, 2 ♂ and 1 ♀ paratypes N. 3372-3374 in AC; Kerala, Cardamon Hills, Periyar, 950 m, 5.XI.1972, leg. Besuchet, Löbl & Mussard, 2 ♂ and 4 ♀ paratypes N. 3285-3290 in GM, 1 ♂ and 2 ♀ paratypes N. 3291-3293 in AC; same collecting data, 7.XI.1972, 3 ♀ paratypes N. 3294-3296 in GM, 2 ♀ paratypes N. 3297-3298 in AC; Kerala, Cardamon Hills, between Pambanar and Peermade, 950 m, 5.XI.1972, leg. Besuchet, Löbl & Mussard, 1 ♂ and 1 ♀ paratypes N. 3299-3300 in GM, 1 ♂ paratype N. 3301 in AC; Kerala, Cardamon Hills, 5 km west from Kumily, 1000 m, 6.XI.1972, leg. Besuchet, Löbl & Mussard, 2 ♀ paratypes N. 3302-3303 in GM; Kerala, Cardamon Hills, Thekkady, near Periyar, 900 m, 7.XI.1972, leg. Besuchet, Löbl & Mussard, 5 ♂ and 16 ♀ paratypes N. 3304-3324 in GM, 4 ♂ and 3 ♀ paratypes N. 3325-3331 in AC; Kerala, Cardamon Hills, between Pambanar and Peermade, 950 m, 9.XI.1972, leg. Besuchet, Löbl & Mussard, 5 ♂ and 5 ♀ paratypes N. 3332-3341 in GM, 2 ♂ and 2 ♀ paratypes N. 3342-3345 in AC; Kerala, Cardamon Hills, Periyar lake, 6 km south from Aranya Nivas Hotel, 950 m, 10.XI.1972, leg. Besuchet, Löbl & Mussard, 2 ♂ paratypes N. 3346-3347 in GM; Kerala, Cardamon Hills, Valara Fall, 46 km S/W from Munnar, 450-500 m, 25.XI.1972, leg. Besuchet, Löbl & Mussard, 5 ♂ and 6 ♀ paratypes N. 3348-3358 in GM, 2 ♂ and 2 ♀ paratypes N. 3359-3362 in AC; Kerala, Nelliampathi Hills, N/W from Anaimalai Hills, Kaikatty, 900 m, 30.XI.1972, leg. Besuchet, Löbl & Mussard, 1 ♂ and 2 ♀ paratypes N. 3363-3365 in GM, 2 ♀ paratypes N. 3366-3367 in AC.

Distribution: India (Kerala and Tamil Nadu).

Agathidium (Microceble) biimpresum Champ.

Figs 83, 84, 87, 90, 95, 96

Agathidium biimpresum Champion, 1927, *Entomologist's mon. Mag.*, 63: 247.

Agathidium biimpresum: HATCH 1929, *Cat. Junk*, 105: 81.

Agathidium (s. str.) *biimpresum*: HLISNIKOVSKY 1964, *Acta ent. Mus. natn. Pragae*, suppl. 5: 199.

R e d e s c r i p t i o n :

Length 2.8-3.1 mm (lectotype ♂ 3.03 mm). Dorsum more or less dark reddish-brown; venter reddish-brown; antennae testaceous, with segments 7-10 darker; legs reddish-brown. Whole dorsum without microreticulation and with sparse puncturation.

Head: Punctures moderately large and impressed, spaced from each other by 2-6 times their own diameter. Anterior-lateral margins rimmed. One short crest and a slight dimple at each side of clypeus. 3rd antennal segment 1.3 times as long as the 2nd and as long as 4th + 5th. Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: Punctures as large as on head, but sparser. Twice as broad as head, little transverse (W/L = 1.33) and moderately convex (W/H = 1.57). Anterior margin slightly bent (fig. 83). Lateral outline broadly rounded (fig. 84). Lectotype: length 1.06 mm, width 1.42 mm, height 0.90 mm.

Elytra: Punctures slightly larger than on head, spaced from each other by 2-5 times their own diameter. Rather less broad than pronotum, longer than broad (W/L = 0.87)

and moderately convex ($W/H = 1.50$). Lateral outline with weak humeral angle. Sutural striae absent. Lectotype: length 1.37 mm, width 1.20 mm, height 0.80 mm.

Metathoracic wings present. Meso- and metasternum: median carina slight, lateral lines absent, femoral lines incomplete.

Legs: Male hind femora simple (fig. 87). Tarsal formula σ 5-5-4, φ 5-4-4.

Male copulatory organ (figs 95-96): Aedeagus comparatively stout, with twisted proximal part, lateral margins convergent into a broadly rounded tip, rhomboidal and bifid ventral piece. Parameres stout and sinuate.

Spermatheca (fig. 90): Basal part globose, with a tubercle at the duct connection; apical part short.

Discussion: see discussion of *A. mussardi* n. sp.

Types: *A. biimpressum* Champ. was described on the basis of an unreported number of specimens from India, Kumaon (Bodiar, Haldwani distr.). We have examined 16 types (10 σ and 6 φ) deposited in British Museum and designated the lectotype.

New material: INDIA, Tamil Nadu, Biligiri, Rangan Hills, N/E of Nilgiri, 10 km N/E from Dhimbam, 1200 m, 29.XI.1972, leg. Besuchet, Löbl & Mussard, 6 specimens in GM, 3 specimens in AC.

Distribution: India (Kumaon, Tamil Nadu).

Agathidium (Microcele) andrewesi Port.

Figs 80, 85, 86, 88, 91, 97, 98

Agathidium (Cyphocele) andrewesi Portevin, 1907, *Bull. Soc. ent. Fr.*, p. 254.

Agathidium (Cyphocele) andrewesi: PORTEVIN 1926, *Encycl. entomol. Col.*, I (2): 81.

Agathidium (Cyphocele) andrewesi: PORTEVIN 1928, *Treubia*, 10: 32.

Agathidium (s. str.) andrewesi: HATCH 1929, *Cat. Junk*, 105: 66.

Agathidium (s. str.) andrewesi: HLISNIKOVSKY 1964, *Acta ent. Mus. natn. Pragae*, suppl. 5: 202-203.

Redescription:

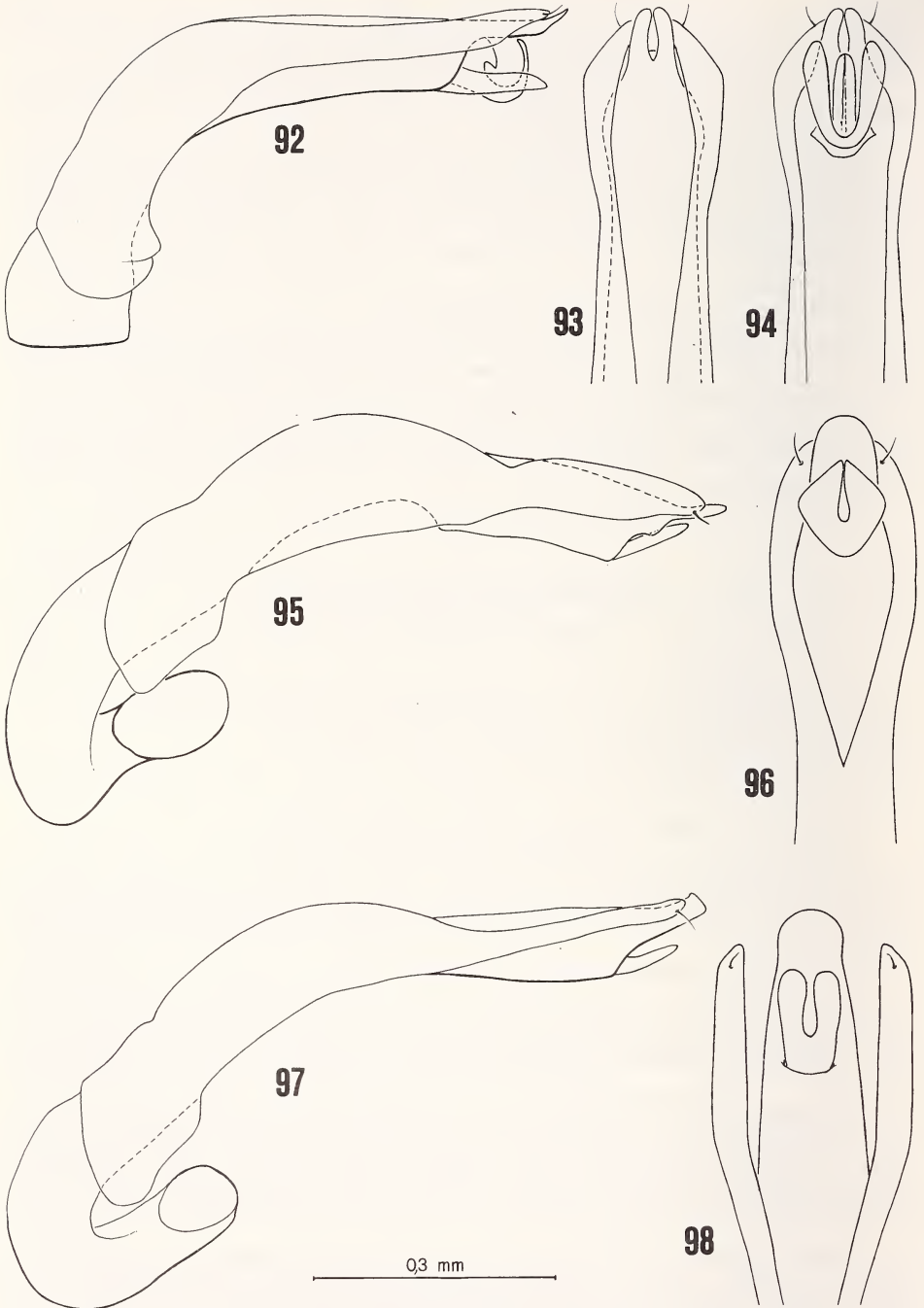
Length 2.5-3.3 mm (type examined 2.50 mm). Dorsum black, reddish-brown at posterior and lateral margins of pronotum; venter reddish-brown; antennae and legs reddish-brown. Whole dorsum without microreticulation and with fine and sparse puncturation.

Head: Punctures small and superficial, spaced from each other by 4-6 times their own diameter. Anterior-lateral margins sharply rimmed. One short crest and one slight dimple at each side of clypeus. 3rd antennal segment 1.2 times as long as the 2nd and shorter than 4th + 5th (fig. 80). Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: Punctures smaller and more superficial than on head, spaced from each other by 3-8 times their own diameter. 1.8 times as broad as head, moderately transverse ($W/L = 1.52$) and moderately convex ($W/H = 1.68$). Anterior margin slightly bent (fig. 85). Lateral outline very broadly rounded (fig. 86). Type examined: length 0.95 mm, width 1.45 mm, height 0.86 mm.

Elytra: Punctures large but superficial, spaced from each other by 1-6 times their own diameter. A little narrower than pronotum, as broad as long and moderately convex ($W/H = 1.67$). Lateral outline with weak humeral angle. Sutural striae absent. Type examined: length 1.35 mm, width 1.42 mm, height 0.85 mm.

Metathoracic wings present. Meso- and metasternum: median carina slight, lateral lines absent, femoral lines incomplete.



FIGS 92-98.

Male copulatory organ (lateral view and dorsal and/or ventral view of apex) of: 92-94, *Agathidium mussardi* n. sp.; 95-96, *A. biimpressum* Champ.; 97-98, *A. andrewesi* n. sp.

Legs: Male hind femora simple (fig. 88). Tarsal formula σ 5-5-4, φ 5-4-4.

Male copulatory organ (figs 97-98): Aedeagus slender, with hook-like proximal part, lateral margins gently convergent into a broadly rounded tip, bifid ventral piece. Parameres slender, abruptly tapered near their apex.

Spermatheca (fig. 91): Basal part pear-shaped, with one tubercle at the duct connection; apical part short.

Discussion: *A. andrewesi* Port. is very similar to *A. brahma* Ang. & Dmz., from which it differs in dorsal coloration, ratio pronotum/head, transversality of pronotum; the identification of these two species must be based on examination of male copulatory organ. See also discussion of *A. mussardi* n. sp.

Types: *A. andrewesi* Port. was described on the basis of two specimens from Tamil Nadu, Nilghiri Hills, leg. Andrewes. We have examined one of these specimens (σ) deposited in the general collection of the Paris Museum.

New material: INDIA, Kerala, Cardamon Hills, 7 km west from Peermade, 800 m, 9.XI.1972, leg. Besuchet, Löbl & Mussard, 1 σ in AC; Tamil Nadu, Nilgiri, Ootacamund, 2150-2200 m, 21.XI.1972, leg. Besuchet, Löbl & Mussard, 1 σ in GM; Tamil Nadu, Nilgiri, Coonoor, 1600 m, 22.XI.1972, leg. Besuchet, Löbl & Mussard, 1 σ and 1 φ in GM, 1 σ and 1 φ in AC; Tamil Nadu, Nilgiri, Hulical, near, Coonoor, right bank of Coonoor River, 1600 m, 22.XI.1972, leg. Besuchet, Löbl & Mussard, 1 σ in GM.

Distribution: India (Kerala, Tamil Nadu).

SPECIES LIST OF *Microceble* n. subg.

- andrewesi* Portevin, 1907: 254
India (Tamil Nadu, Kerala)
- angelinii* Cooter, 1984: 69
Philippines
- arcuatum* Angelini & Cooter, 1985: 129
Malaysia (Sarawak)
- assamense* Angelini & De Marzo, 1986
India (Assam)
- biimpressum* Champion, 1927: 247
India (Kumaon, Tamil Nadu)
- brahma* Angelini & De Marzo, 1985: 73
Nepal
- celebense* Portevin, 1937: 34
Celebes
- ciliatum* Portevin, 1908: 25
Japan
- coomani* Portevin, 1937: 33
Viet Nam
- cooteri* Angelini & De Marzo, 1984c: 35
Philippines
- darbyi* Angelini & Cooter, 1985: 132
Malaysia (Sarawak), Philippines

- duofoveatum* Angelini & De Marzo, 1981: 264
Nepal, India (Darjeeling)
- globulosum* Hlisenkovsky, 1972: 132
Sri Lanka
- grouvellei* Portevin, 1907: 76
Birmania, Indonesia
- hammondi* Angelini & Cooter, 1985: 130
Malaysia (Sarawak)
- klapperichi* Angelini & De Marzo, 1984c: 41
Tai Wan
- laticorne* Portevin, 1922: 58
Nepal, Bhutan, India (Garhwal, Kumaon, Darjeeling, Assam, Meghalaya, Orissa, Tamil Nadu, Kerala), Sri Lanka, Viet Nam, Malaysia (Malaya and Sarawak), Indonesia (Java and Sumatra).
- maculatum* Angelini & Cooter, 1985: 128
Malaysia (Sarawak)
- maculicolle* Champion, 1924: 161
India (Kumaon)
- manasicum* Angelini & De Marzo, 1986
India (Assam)
- mussardi* Angelini & De Marzo, 1986
India (Tamil Nadu, Kerala)
- palnicum* Angelini & De Marzo, 1986
India (Tamil Nadu, Kerala)
- pileti* Angelini & De Marzo, 1986
Malaysia (Malaya)
- puncticolle* Cooter, 1984: 70
Philippines, Tai Wan
- rama* Angelini & De Marzo, 1985: 71
Nepal
- ravana* Angelini & De Marzo, 1984b: 167
India (Darjeeling)
- sarawakense* Angelini & Cooter, 1985: 131
Malaysia (Sarawak), Philippines
- saundersi* Angelini & Cooter, 1986: 37
Malaysia (Singapore), Viet Nam
- semirufum* Angelini & De Marzo, 1981: 252
Bhutan, Nepal, India (Assam, Darjeeling)
- sewokense* Angelini & De Marzo, 1984a: 561
India (Darjeeling)
- sumatrense* Angelini & De Marzo, 1984c: 45
Indonesia (Sumatra)
- taiwanense* Angelini & De Marzo, 1984c: 42
Tai Wan
- taru* Angelini & De Marzo, 1983: 160
Nepal

- tonkinense* Angelini & Cooter, 1986: 39
India (Assam), Viet Nam
- topali* Angelini & De Marzo, 1984c: 44
Viet Nam

REFERENCES

- ANGELINI, F. & L. DE MARZO. 1981. Reports of *Agathidium* from Himalaya: expeditions of Basel Natural History Museum and Prof. H. Franz (*Coleoptera, Leiodidae*). *Entomol. Basiliensia* 6: 187-294.
- 1983. New species and records of *Agathidium* from Himalaya: expeditions of Basel Natural History Museum (*Coleoptera, Leiodidae*). *Entomol. Basiliensia* 8: 153-164.
- 1984a. Reports of *Agathidium* from Darjeeling: expedition 1978 of Geneva Natural History Museum (*Coleoptera, Leiodidae*). *Revue suisse Zool.* 91 (3): 545-562.
- 1984b. *Agathidium* from India collected by Dr. Gy. Topál (*Coleoptera, Leiodidae*). *Annls. hist.-nat. Mus. natn. hung.* 76: 165-168.
- 1984c. Descrizione di 13 nuove specie di Anisotomini dell'Asia sudorientale (*Coleoptera, Leiodidae*). *Entomologica* 19: 23-49.
- 1985. Reports of *Agathidium* from Central Nepal and North India: expeditions 1979 and 1981 of Geneva Natural History Museum (*Coleoptera, Leiodidae*). *Revue suisse Zool.* 92 (1): 33-76.
- ANGELINI, F. & J. COOTER. 1985. Studies on Anisotomini (*Col. Leiodidae*) of Sarawak. *Sarawak Mus. Journ.* 34 (55): 125-143.
- 1986. Notes on some Anisotomini (*Coleoptera, Leiodidae*) from South-East Asia with description of two new species. *Entomologist's mon. Mag.* 122: 37-41.
- CHAMPION, G. C. 1924. Some Indian *Coleoptera*. *Entomologist's mon. Mag.* 60: 161.
- 1927. Some Indian *Coleoptera*. *Entomologist's mon. Mag.* 63: 245-250.
- COOTER, J. 1984. Two new species of *Agathidium* Panzer (*Col. Leiodidae*) from the Philippines. *Entomologist's mon. Mag.* 120: 69-72.
- HATCH, M. H. 1929. *Coleopterorum Catalogus*, pars 105: *Leiodidae, Clambidae*. W. Junk, Berlin, pp. 1-100.
- HLISNIKOVSKY, J. 1964. Monographische Bearbeitung der Gattung *Agathidium* Panzer (*Coleoptera*). *Acta ent. Mus. natn. Pragae*, supp. 5: 1-255.
- 1972. Beitrag zur Kenntnis der *Liodidae* (*Coleoptera*) von Ceylon. *Mitt. schweiz. ent. Ges.* 45: 131-149.
- PORTEVIN, G. 1907. Clavicorne nouveaux du groupe Nécrophages. *Annls Soc. ent. Fr.* 76: 67-82.
- 1907. Description de Silphides et Liodides nouveaux. *Bull. Soc. ent. Fr.*: 251-255.
- 1908. Quatrième note sur les Nécrophages du Muséum. *Bull. Mus. natn. Hist. nat. Paris*: 19-29.
- 1922. Notes sur quelques Silphides et Liodides de la collection Grouvelle. *Bull. Mus. natn. Hist. nat. Paris*: 54-58.
- 1926. Les *Liodidae* de l'Inde. *Encycl. ent. Col.* 1: 75-83.
- 1928. Description d'un nouvel *Agathidium* des îles de la Sonde. *Treubia* 10: 31.
- 1937. Liodides nouveaux des collections du Muséum. *Revue fr. Ent.* 4: 31-36.